PowerVu® Model D9858 Advanced Receiver Transcoder

Installation and Operation Guide

Please Read This Entire Guide
Veuillez lire entièrement ce guide
Bitte das gesamte Handbuch durchlesen
Sírvase leer completamente la presente guía
Si prega di leggere completamente questa guida

Important:

Please read this entire guide before you install or operate this product. Give particular attention to all safety statements.

Important:

Veuillez lire entièrement ce guide avant d'installer ou d'utiliser ce produit. Prêtez une attention particulière à toutes les règles de sécurité.

Zu beachten:

Bitte lesen Sie vor Aufstellen oder Inbetriebnahme des Gerätes dieses Handbuch in seiner Gesamtheit durch. Achten Sie dabei besonders auf die Sicherheitshinweise.

Importante:

Sírvase leer la presente guía antes de instalar o emplear este producto. Preste especial atención a todos los avisos de seguridad.

Importante:

Prima di installare o usare questo prodotto si prega di leggere completamente questa guida, facendo particolare attenzione a tutte le dichiarazioni di sicurezza.

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Notices

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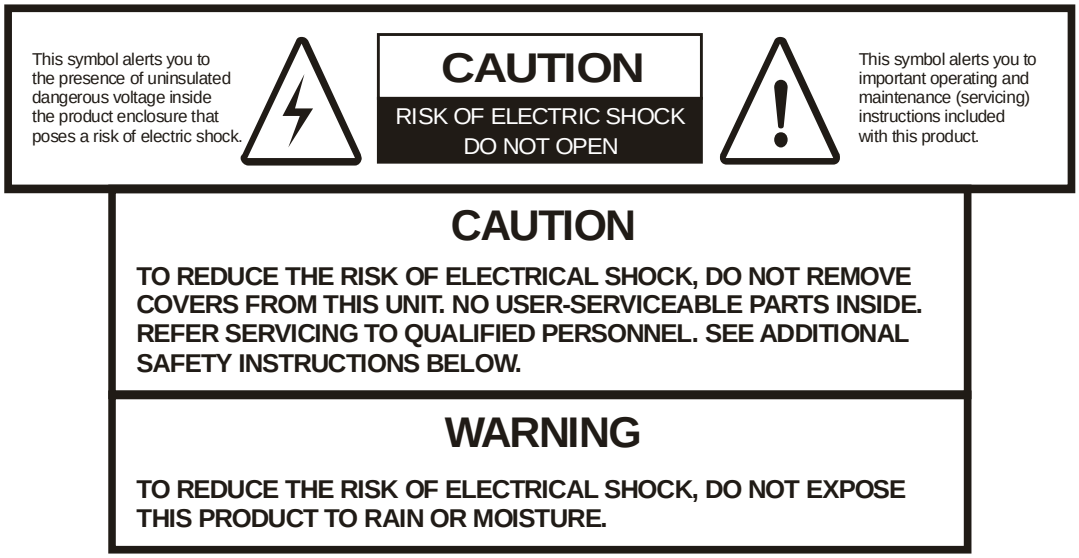

This symbol alerts you to the presence of uninsulated dangerous voltage inside the product enclosure that poses a risk of electric shock.
CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
This symbol alerts you to important operating and maintenance (servicing) instructions included with this product.
CAUTION
TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVERS FROM THIS UNIT. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL. SEE ADDITIONAL SAFETY INSTRUCTIONS BELOW.
WARNING
TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

1. Read Instructions – All the safety and operating instructions should be read before the product is operated.
2. Retain Instructions – The safety and operating instructions should be retained for future reference.
3. Heed Warnings – All warnings on the product and in the operating instructions should be adhered to.
4. Follow Instructions – All operating and use instructions should be followed.
5. Cleaning – Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
   Exception: A product that is meant for uninterrupted service and that, for some specific reason, such as the possibility of the loss of an authorization code for a CATV converter, is not intended to be unplugged by the user for cleaning or any other purpose, may exclude the reference to unplugging the product in the cleaning description above.
6. Attachments – Do not use attachments not recommended by the product manufacturer as they may cause hazards.
7. Water and Moisture – Do not use this product near water – for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.
8. Accessories – Do not place this product on an unstable cart, stand, tripod, bracket, or table.
   The product may fall, causing serious injury to a child or adult, and serious damage to the product.

Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

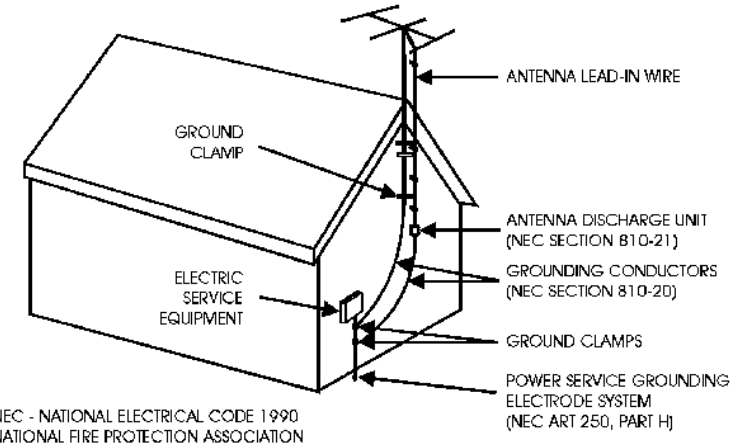
9. A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

PORTABLE CART WARNING

10. Ventilation – Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
11. Power Sources – This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.
12. Grounding or Polarization – This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
    Alternate Warnings – This product is equipped with a three-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

13. Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.
14. Protective Attachment Plug – The product is equipped with an attachment plug having overload protection. This is a safety feature. See Instruction Manual for replacement or resetting of protective device. If replacement of the plug is required, be sure the service technician has used a replacement plug specified by the manufacturer that has the same overload protection as the original plug.
15. Outdoor Antenna Grounding – If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Figure 1. Outdoor antenna grounding


ANTENNA LEAD-IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-21)
GROUNDING CONDUCTORS (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250, PART H)
NEC - NATIONAL ELECTRICAL CODE 1990
NATIONAL FIRE PROTECTION ASSOCIATION

TO CATV SYSTEM INSTALLER
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the National Electrical Code (NEC) that provides guidelines for proper grounding, and in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of entry as practical.

16. Lightning – For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

17. Power Lines – An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
18. Overloading – Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.
19. Object and Liquid Entry – Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
20. Servicing – Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
21. Damage Requiring Service – Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
    a) When the power-supply cord or plug is damaged,
    b) If liquid has been spilled, or objects have fallen into the product,
    c) If the product has been exposed to rain or water,
    d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation,
    e) If the product has been dropped or damaged in any way, and
    f) When the product exhibits a distinct change in performance – this indicates a need for service.
22. Replacement Parts – When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
23. Safety Check – Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
24. Wall or Ceiling Mounting – The product should be mounted to a wall or ceiling only as recommended by the manufacturer.
25. Heat – The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

Protect yourself from electric shock and your system from damage!

- This product complies with international safety and design standards. Observe all safety procedures that appear throughout this guide, and the safety symbols that are affixed to this product.
- If circumstances impair the safe operation of this product, stop operation and secure this product against further operation.

Avoid personal injury and product damage! Do not proceed beyond any symbol until you fully understand the indicated conditions!

	You will find this symbol on the product and/or in the literature that accompanies this product. It indicates important operating or maintenance instructions.
	You may find this symbol on the product and/or in the literature that accompanies this product. It indicates a live terminal; the symbol pointing to the terminal device.
	You may find this symbol on the product and/or in the literature that accompanies this product. It indicates a protective earth terminal.
	You may find this symbol on the product and/or in the literature that accompanies this product. It indicates excessive or dangerous heat.

Power

- **Important! This is a Class I product. You must earth this product.**
- **This product plugs into a socket-outlet. The socket-outlet must be near this product, and must be easily accessible. Connect this product only to the power source that is indicated on the back panel of this product. If this product does not have a mains power switch, the power cord serves this purpose.**

Enclosure

- Do not allow moisture to enter this product.
- Do not open the enclosure of this product unless otherwise specified.
- Do not push objects through openings in the enclosure of this product.

Cables

- Always disconnect all power cables before servicing this product.
- Always pull on the plug or the connector to disconnect a cable. Never pull on the cable itself.
- Do not walk on or place stress on cables or plugs.

Factory service

- Refer service only to service personnel who are authorized by the factory.

Règles de sécurité

Protégez-vous des risques d'électrocution et protégez votre système contre les endommagements éventuels.

- Ce produit respecte les standards internationaux de sécurité et de conception. Veuillez observer toutes les procédures de sécurité qui apparaissent dans ce guide, ainsi que les symboles de sécurité qui figurent sur le produit.
- Si, du fait des circonstances, ce produit cesse de fonctionner normalement, cessez de l'utiliser et empêchez-en l'utilisation future.

Évitez le risque de blessures et de dommages aux produits! Ne procédez à aucune tâche tant que vous n'aurez pas entièrement assimilé les conditions indiquées par un symbole!

	Ce symbole figure dans la documentation accompagnant ce produit. Il indique d'importantes instructions de fonctionnement ou d'entretien.
	Ce symbole peut être attaché à ce produit. Il indique une borne sous tension; la direction indique la borne.
	Ce symbole peut être attaché à ce produit. Il indique une borne de terre de protection.
	Ce symbole peut être attaché à ce produit. Il indique une température excessive ou dangereuse.

Alimentation

- **Important! Ce produit fait partie de la classe I. Vous devez le mettre à la terre.**
- **Ce produit se branche dans une prise murale. Cette dernière doit être placée à proximité du produit et doit être facilement accessible.**
- **Ne branchez ce produit qu'à la source d'alimentation indiquée sur son panneau arrière.**
- **Si ce produit n'a pas d'interrupteur d'alimentation générale, le cordon d'alimentation remplit ce rôle.**

Enceinte

- Ne laissez pas l'humidité pénétrer dans ce produit.
- N'ouvrez pas l'enceinte de ce produit, sauf instructions contraires.
- Ne forcez pas d'objets dans les ouvertures du boîtier.

Câbles

- Débranchez toujours tous les cordons d'alimentation avant de réparer ce produit.
- Tirez toujours sur la prise ou le connecteur pour débrancher un câble. Ne tirez jamais directement sur le câble.
- Ne marchez pas sur les câbles ou les prises et n'y exercez aucune pression.

Réparations effectuées à l'usine

- Ne confiez les travaux de réparations qu'au personnel autorisé par l'usine.

Sicherheitsvorkehrungen

Schützen Sie sich gegen elektrischen Schlag, und Ihr Gerät gegen Beschädigung!

- Dieses Gerät entspricht internationalen Sicherheits-und Ausführungsnormen. Beachten Sie alle in diesem Handbuch enthaltenen Sicherheitshinweise sowie die am Gerät angebrachten Warnzeichen.
- Sollten örtliche Umstände den sicheren Betrieb dieses Gerätes beeinträchtigen, schalten Sie es ab und sichern es gegen weitere Benutzung.

Vermeiden Sie Verletzungen sowie Beschädigung des Gerätes! Wenn Sie zu einem der folgenden Warnzeichen gelangen, nicht weiterarbeiten, bis Sie seine Bedeutung voll verstanden haben!

	Dieses Symbol erscheint auf dem Gerät und/oder in der ihm beiliegenden Literatur. Es bedeutet wichtige, zu beachtende Betriebs-oder Wartungsanweisungen.
	Wenn dieses Zeichen am Gerät angebracht ist, warnt es vor einer spannungsführenden Stelle.
	Dieses Symbol kennzeichnet auf dem Gerät die Anschlußstelle der Sicherheitserde.
	Wenn dieses Zeichen am Gerät angebracht ist, warnt es vor heißen Stellen, die zu Verbrennungen führen können.

Netzspannung

- **Wichtig!** Dieses Gerät ist ein Produkt der Schutzklasse I. Es muß geerdet werden.
- **Das Gerät ist an einer Steckdose anzuschließen. Diese muß sich leicht zugänglich in unmittelbarer Nähe des Gerätes befinden.**
- **Die Netzversorgung muß den auf der Rückwand des Gerätes angegebenen Werten entsprechen.**
- **Falls sich kein Hauptschalter am Gerät befindet, dient das Netzkabel diesem Zweck.**

Gehäuse

- Das Innere des Gerätes ist vor Feuchtigkeit zu schützen.
- Das Gehäuse ist nicht zu öffnen.
- Niemals einen Gegenstand durch die Gehäuseöffnungen einführen!

Kabel

- Vor jeglicher Wartung des Gerätes sind alle Kabel zu entfernen.
- Hierzu grundsätzlich am Stecker oder Verbindungsstück und niemals am Kabel selber ziehen.
- Nicht auf die Kabel oder Stecker treten oder diese einer Zugbelastung aussetzen.

Hersteller-Wartung

Wartungsarbeiten sind nur durch vom Hersteller autorisierte Techniker vorzunehmen.

¡Protéjase contra la electrocución y proteja su sistema contra los daños!

- Este producto cumple con los criterios internacionales de seguridad y diseño. Observe todas los procedimientos de seguridad que aparecen en esta guía, y los símbolos de seguridad adheridos a este producto.
- Si las circunstancias impiden la operación segura de este producto, suspenda la operación y asegure este producto para que no siga funcionando.

¡Evite lastimarse y evite dañar el producto! No avance más allá de cualquier símbolo hasta comprender completamente las condiciones indicadas!

	Encontrará este símbolo en el impreso que acompaña a este producto. Este símbolo indica instrucciones importantes de funcionamiento o mantenimiento.
	Es posible que este símbolo esté pegado al producto. Este símbolo indica un terminal vivo, la flecha apunta hacia el aparato terminal
	Podría encontrar este símbolo pegado al producto. Este símbolo indica un terminal de protección de tierra.
	Podría encontrar este símbolo pegado al producto. Este símbolo indica calor excesivo o peligroso.

Power

- **Importante! Este es un producto de Clase I. Tiene que estar conectado a tierra.**
- **Este producto se conecta a un enchufe. El enchufe necesita estar cerca del producto y ser fácilmente accesible.**
- **Conecte este producto únicamente a la fuente de suministro eléctrico indicada en el panel posterior del producto.**
- **Si el producto no tiene interruptor para la linea principal, utilice el cordón toma de corriente para este propósito.**

Cubierta

- No permita que la humedad penetre en este producto.
- No abra la cubierta del producto a menos que se indique lo contrario.
- No introduzca objetos a través de las aberturas de la cubierta del producto.

Cables

- Siempre desconectar todos los cables eléctricos antes de revisar o reparar el producto.
- Tire siempre del enchufe o del conector para desconectar un cable. Nunca tire del cable mismo.
- No camine ni aplique presión sobre los cables o enchufes..

Revisión y reparación de fábrica

Solo personal aprobado por la fábrica puede darle servicio al producto.

Precauzioni di sicurezza

Proteggetevi da scosse elettriche e proteggete il vostro sistema da possibili danni!

- Questo prodotto soddisfa le norme internazionali per la sicurezza ed il design. Seguite tutte le procedure di sicurezza contenute in questa guida e i simboli di sicurezza applicati al prodotto.
- Se circostanze avverse compromettono la sicurezza d'uso di questo prodotto, interrompetene l'uso e assicuratevi che il prodotto non venga più utilizzato.

Evitare infortuni alla persona e danni al prodotto! Non procedere oltre a qualunque simbolo fino a quando non si siano comprese pienamente le condizioni indicate!

	Questo simbolo, che appare nella letteratura di accompagnamento del prodotto, indica importanti istruzioni d'uso e di manutenzione.
	Sul prodotto potete vedere questo simbolo che indica un dispositivo terminale sotto tensione; la freccia punta verso il dispositivo.
	Potrete trovare il presente simbolo applicato a questo prodotto. Questo simbolo indica un terminale protettivo di messa a terra.
	Potrete trovare il presente simbolo attaccato a questo prodotto. Questo simbolo indica un calore eccessivo o pericoloso.

Alimentazione

- **Importante! Questo prodotto è di Classe I. Va messo a terra.**
- **Questo prodotto si inserisce in una presa di corrente. La presa di corrente deve essere in prossimità del prodotto, e deve essere facilmente accessibile.**
- **Collegare questo prodotto solamente alla fonte di alimentazione indicata sul pannello posteriore di questo prodotto.**
- **Se questo prodotto non è dotato di un interruttore principale, il cavo di alimentazione funge a questo scopo.**

Chiusura

- Proteggete da umidità questo prodotto.
- Non aprire la chiusura di questo prodotto a meno che non sia specificato diversamente.
- Non inserire oggetti attraverso le fessure della chiusura.

Cavi

- Staccare sempre tutti i cavi di alimentazione prima di svolgere l'assistenza tecnica al prodotto.
- Per scollegare un cavo tirate la spina o il connettore, non tirare mai il cavo stesso.
- Non calpestare o sottoporre a sollecitazioni i cavi o le prese.

Riparazionoi di fabbrica

- Per le riparazioni contattate solamente personale tecnico autoizzato dalla fabbrica.

Important Safety Instructions

Read and Retain Instructions

Carefully read all safety and operating instructions before operating this equipment, and retain them for future reference.

Follow Instructions and Heed Warnings

Follow all operating and use instructions. Pay attention to all warnings and cautions in the operating instructions, as well as those that are affixed to this equipment.

Terminology

The terms defined below are used in this document. The definitions given are based on those found in safety standards.

Service Personnel - The term *service personnel* applies to trained and qualified individuals who are allowed to install, replace, or service electrical equipment. The service personnel are expected to use their experience and technical skills to avoid possible injury to themselves and others due to hazards that exist in service and restricted access areas.

User and Operator - The terms *user* and *operator* apply to persons other than service personnel.

Ground(ing) and Earth(ing) - The terms *ground(ing)* and *earth(ing)* are synonymous. This document uses ground(ing) for clarity, but it can be interpreted as having the same meaning as earth(ing).

Electric Shock Hazard

This equipment meets applicable safety standards.

> ⚠ **WARNING:**
>
> **To reduce risk of electric shock, perform only the instructions that are included in the operating instructions. Refer all servicing to qualified service personnel only.**

Electric shock can cause personal injury or even death. Avoid direct contact with dangerous voltages at all times. The protective ground connection is essential to safe operation and must be verified before connecting the power supply.

Know the following safety warnings and guidelines:

- **Dangerous Voltages**
  - Only qualified service personnel are allowed to perform equipment installation or replacement.
  - Only qualified service personnel are allowed to remove chassis covers and access any of the components inside the chassis.
- **Grounding**
  - Do not violate the protective grounding by using an extension cable, power cable, or autotransformer without a protective ground conductor.
  - Take care to maintain the protective grounding of this equipment during service or repair and to re-establish the protective grounding before putting this equipment back into operation.

Installation Site

When selecting the installation site, comply with the following:

- **Protective Ground** - The protective ground lead of the building's electrical installation should comply with national and local requirements.
- **Environmental Condition** - The installation site should be dry, clean, and ventilated. Do not use this equipment where it could be at risk of contact with water. Ensure that this equipment is operated in an environment that meets the requirements as stated in this equipment's technical specifications, which may be found on this equipment's data sheet.

Installation Requirements

⚠ WARNING:

Allow only qualified service personnel to install this equipment.
The installation must conform to all local codes and regulations.

Equipment Placement

⚠ WARNING:

Avoid personal injury and damage to this equipment. An unstable mounting surface may cause this equipment to fall.

To protect against equipment damage or injury to personnel, comply with the following:

- Install this equipment in a restricted access location.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other equipment (including amplifiers) that produce heat.
- Place this equipment close enough to a mains AC outlet to accommodate the length of this equipment's power cord.
- Route all power cords so that people cannot walk on, place objects on, or lean objects against them. This may pinch or damage the power cords. Pay particular attention to power cords at plugs, outlets, and the points where the power cords exit this equipment.
- Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with this equipment.
- Make sure the mounting surface or rack is stable and can support the size and weight of this equipment.
- The mounting surface or rack should be appropriately anchored according to manufacturer's specifications. Ensure this equipment is securely fastened to the mounting surface or rack where necessary to protect against damage due to any disturbance and subsequent fall.

Ventilation

This equipment has openings for ventilation to protect it from overheating. To ensure equipment reliability and safe operation, do not block or cover any of the ventilation openings. Install the equipment in accordance with the manufacturer's instructions.

Rack Mounting Safety Precautions

Mechanical Loading

Make sure that the rack is placed on a stable surface. If the rack has stabilizing devices, install these stabilizing devices before mounting any equipment in the rack.

⚠ WARNING:

Avoid personal injury and damage to this equipment. Mounting this equipment in the rack should be such that a hazardous condition is not caused due to uneven mechanical loading.

Reduced Airflow

When mounting this equipment in the rack, do not obstruct the cooling airflow through the rack. Be sure to mount the blanking plates to cover unused rack space. Additional components such as combiners and net strips should be mounted at the back of the rack, so that the free airflow is not restricted.

⚠ CAUTION:

Installation of this equipment in a rack should be such that the amount of airflow required for safe operation of this equipment is not compromised.

Elevated Operating Ambient Temperature

Only install this equipment in a humidity- and temperature-controlled environment that meets the requirements given in this equipment's technical specifications.

⚠ CAUTION:

If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, install this equipment in an environment compatible with the manufacturer's maximum rated ambient temperature.

Handling Precautions

When moving a cart that contains this equipment, check for any of the following possible hazards:

⚠ WARNING:

Avoid personal injury and damage to this equipment! Move any equipment and cart combination with care. Quick stops, excessive force, and uneven surfaces may cause this equipment and cart to overturn.

- Use caution when moving this equipment/cart combination to avoid injury from tip-over.
- If the cart does not move easily, this condition may indicate obstructions or cables that may need to be disconnected before moving this equipment to another location.
- Avoid quick stops and starts when moving the cart.
- Check for uneven floor surfaces such as cracks or cables and cords.

Grounding

This section provides instructions for verifying that the equipment is properly grounded.

Safety Plugs (USA Only)

Equipment protection Class I - Scientific Atlanta supplies a mains cord with a 3-terminal (grounding-type) safety plug. Do not defeat the safety purpose of the grounding-type or polarized safety plug.

To properly ground this equipment, follow these safety guidelines:

- **Grounding-Type Plug** - For a 3-terminal plug (one terminal on this plug is a protective grounding pin), insert the plug into a grounded mains, 3-terminal outlet.

  Note: This plug fits only one way. If this plug cannot be fully inserted into the outlet, contact an electrician to replace the obsolete 3-terminal outlet.

Safety Plugs (European Union)

- **Class I Mains Powered Equipment** - Provided with a 3-terminal AC inlet and requires connection to a 3-terminal mains supply outlet via a 3-terminal power cord for proper connection to the protective ground.

  Note: The equipotential bonding terminal provided on some equipment is not designed to function as a protective ground connection.

Equipotential Bonding

If this equipment is equipped with an external chassis terminal marked with the IEC 60417-5020 chassis icon ( ), or 5017 ( ), the installer should refer to CENELEC standard EN 50083-1 or IEC standard IEC 60728-11 for correct equipotential bonding connection instructions.

AC Power

Important: This equipment is Class I equipment, it must be grounded.

- If this equipment plugs into an outlet, the outlet must be near this equipment, and must be easily accessible.
- Connect this equipment only to the power sources that are identified on the equipment-rating label normally located close to the power inlet connector(s).
- If this equipment has two power sources be sure to disconnect all power sources before working on this equipment.
- If this equipment **does not** have a main power switch, the power cord connector serves as the disconnect device.
- Always pull on the plug or the connector to disconnect a cable. Never pull on the cable itself.
- Unplug this equipment when unused for long periods of time.

Circuit Overload

Know the effects of circuit overloading before connecting this equipment to the power supply.

> ⚠ **CAUTION:**
>
> **Consider the connection of this equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring. Refer to the information on the equipment-rating label when addressing this concern.**

General Servicing Precautions

> ⚠ **WARNING:**
>
> **Avoid electric shock! Opening or removing this equipment's cover may expose you to dangerous voltages.**

Be aware of the following general precautions and guidelines:

- **Servicing** - Refer all servicing to qualified service personnel. Servicing is required when this equipment has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into this equipment, this equipment has been exposed to rain or moisture, does not operate normally, or has been dropped.
- **Wristwatch and Jewelry** - For personal safety and to avoid damage of this equipment during service and repair, do not wear electrically conducting objects such as a wristwatch or jewelry.
- **Lightning** - Do not work on this equipment, or connect or disconnect cables, during periods of lightning.
- **Labels** - Do not remove any warning labels. Replace damaged or illegible warning labels with new ones.
- **Covers** - Do not open the cover of this equipment and attempt service unless instructed to do so in the instructions. Refer all servicing to qualified service personnel only.
- **Moisture** - Do not allow moisture to enter this equipment.
- **Cleaning** - Use a damp cloth for cleaning.

Safety Checks - After service, assemble this equipment and perform safety checks to ensure it is safe to use before putting it back into operation.

Accessories

Use only attachments or accessories specified by the manufacturer.

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About This Manual

Objective

This manual describes how to install, use and maintain the Model D9858 Advanced Receiver Transcoder.

Note: The manual describes all available options for the D9858 Advanced Receiver Transcoder. Your D9858 Advanced Receiver Transcoder may only have some of the features described in this manual.

Audience

The audience of this manual includes **users (operators)** and **service personnel** who are responsible for the installation, configuration, operation, monitoring and service of the D9858 Advanced Receiver Transcoder.

Required Knowledge

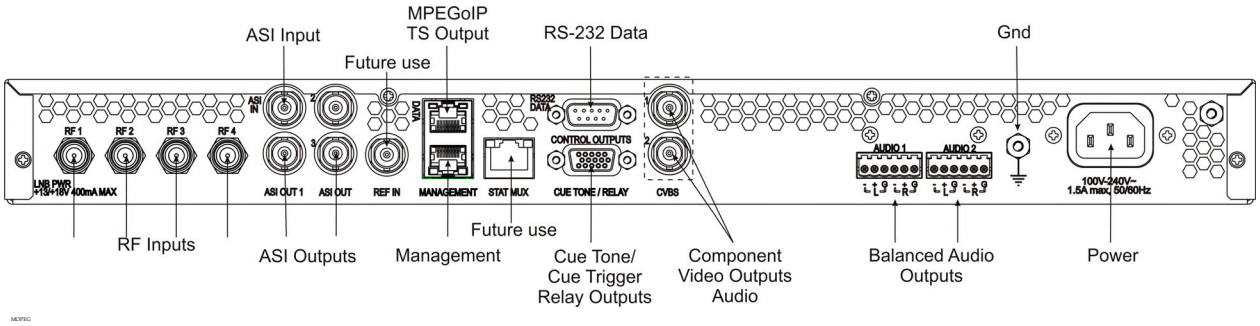
To use this documentation, the user should have a basic knowledge of the technology used in relation to this product. Service personnel should have additional skills and be familiar with cabling, electronic circuitry, and wiring practices.

This manual is intended for operators who are responsible for the configuration, remote operation and maintenance of the D9858 Advanced Receiver Transcoder.

Chapter 1
Quick Setup - Read Me First!

Connecting the Transcoder

Proceed as follows to connect the Model D9858 Advanced Receiver Transcoder to other equipment.



1. Connect the L-Band signal to RF1.
   Note that LNB power is only available on the RF1 port. RF2 to RF4 require an external LNB power source. The factory default setting for LNB power is OFF.
2. If desired, connect the ASI IN port to an asynchronous serial interface device for uplink monitoring.
3. Connect the ASI OUT ports to an asynchronous serial interface device for digital tier applications.

   Important! A double-shielded coaxial cable is required to connect to the ASI OUT and/or the ASI IN port in order to meet EMC requirements.
4. Connect the Composite Video Outputs to a video monitor.
5. Using a multi-conductor, pluggable cable, connect the transcoder's balanced audio outputs, terminal blocks AUDIO 1 and AUDIO 2 to monitoring equipment.

   Note: The Ethernet MANAGEMENT port does not currently provide SNMP or management control. It is used for software application downloads only.

Connecting Power Cables

6. Connect the power cord (supplied with the unit) between the rear panel power receptacle and a 100V to 240V, 50/60 Hz AC power outlet.
   The power cord (consisting of appliance coupler, flexible cord, and plug) supplied with this product meets the requirements for use in the country for which this product was purchased. In general, the power cord must be approved by an acceptable, accredited agency responsible for evaluation in the country where the product will be used.
   When connecting the power source to the D9858 transcoder, it takes less than a minute for the unit to initialize. The front panel display displays the startup screen.

Maintenance of EMC Compliance

Double-shielded (braid/foil or braid/braid) cables should be used for all ASI I/O and RF inputs. Single-shield cables are acceptable for all other inputs and outputs. For terminal block (Alarms) I/O, no shielding is required.

Locking/Unlocking the Front Panel

The front panel can be locked or unlocked using the front panel keypad.

Proceed as follows to unlock the front panel using the front panel keypad:

1. When at the Main Menu, press **SELECT** and then **INFO**. This will unlock the front panel keypad and allow you make changes to all the operating parameters; however, if the keypad remains untouched for the duration of the set timeout period (default is 60 seconds), the keypad will change back to the Lock state unless you change the keypad state on the Admin Menu. Likewise you toggle the keypad lock state back using SELECT and INFO at any time provided the KB Lock state on the Admin Menu is Enabled. See **Keypad Convention**, page 4-4 for instructions on the use of the front panel keypad buttons
2. To disable Lock completely, navigate to **Setup: Admin: KB Lock** in the LCD display and press the **SELECT** key.
3. Change the **KB Lock** state from **Enabled** to **Disabled**.
4. The front panel will now be unlocked allowing you to change any of the operating parameters.

To lock the front panel, perform the same procedure, except use the ▶ key to change the state. You will not be prompted to confirm the operation.

Proceed as follows to set up the TS Input and Tuning:

1. Press the **MENU** key and use the ◀ ▶ arrw keys to navigate to the **Setup: TS Input: Input** menu, using the **SELECT** key to move down each level, and then use the ▲▼ arrow keys to set the following parameters. See **Keypad Convention**, page 4-4 for instructions on the use of the front panel keypad buttons, and the **Main Menu**, page 4-10 for information on the front panel menu structure.

Entry/Selection	Options
RF1 or ASI	Set to ACT to enable/activate the input. Note: It is not necessary to set the tuning parameters if you are using the ASI input.
LO1, LO2, Xover	LO (Local Oscillator) and Crossover frequencies in GHz.
Input	4 RF input ports to select.
Modulation	DVB-S or DVB-S2. If set to DVB-S2, set FEC to Auto.
Freq. Sym Rate and FEC	Type in downlink frequency (in GHz) If the FEC is unknown, leave it at "Auto". It must be set to Auto if DVB-S2 modulation is used.
Set LNB Voltage	Only RF1 has DC power. LNB Voltage options - 13 (V), 18 (V) and Off.
Rolloff	Only required for DVB-S2.
Net ID	Enter your network ID.

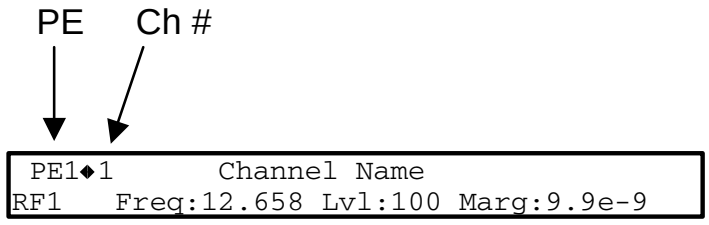
2. Press **MENU** to exit the menu level and save the changes.

   Note: If the changes are saved successfully, the transcoder will return to the Main Menu. It will search for the signal and display “Acquisition Successful”. The transcoder will find the first available channel on the network. You can select another available channel if necessary. If when entering parameters, the changes cannot be saved successfully, a "Value out of range” or “Invalid Parameters!" error message appears and you will need to continue editing. Select 'Yes' to continue editing. If 'No' is selected, all the changes will be lost.

Assigning a Program Channel to a Program Entry

Proceed as follows to assign program channels to program entries:

1. Set up the two Program Entries, PE1 and PE2, for two input program channels that you are authorized to receive. See Assigning Programs to Program Entries for more information.
2. Press **MENU** until you display the startup screen.



   PE1 (the decode Program Entry) is initially displayed.
3. Press the **ADV** key on the front panel keypad and then the ▲▼ arrow keys to scroll through the two PEs available.
4. Press the **SELECT** key to select a PE (PE1 or PE2) and then the use ► arrow key to move to the right and scroll through the available program channels.
5. Directly enter the channel number for the selected PE using the 0 to 9 keys, and press **SELECT** to save the channel selection.
6. Repeat this process to select a program channel for PE2.

Proceed as follows to configure the Video output format and TS Output settings:

1. Press the **MENU** key and use the RIGHT arrow key to navigate to the **Setup: Services: Video** menu, using the **SELECT** key to move down each level, and then use the ▲▼ arrow keys to navigate and set the video output format.

Entry/Selection	Options
SD Format	Set to Auto (default) or the particular output resolution for the monitor, e.g., NTSC or PAL.

2. Press **MENU** to exit the menu level and save the changes.
3. Use the ► arrow key to move to the **Setup: Outputs: TS Out: ASI** or **MOIP1** menu, using the **SELECT** key to move down each level, and then use the ▲▼ arrow keys to navigate and configure the Output Mode. Refer to **DPM Default Settings for Different Output Modes**, page B-9 for information on the default settings for each output mode, to choose the desired Output Mode.

Entry/Selection	Options
Output Mode	It is recommended to set the Output Mode to **Transcoding**. The output mode is factory set to **No Output** as the default.
Resync All	Resynchronize the output services, ASI or MOIP1. Select **Yes** when prompted.

4. Press **MENU** to exit the menu level and save the changes.

Chapter 2
Introduction

Overview

Introduction

This chapter is a general introduction to the Model D9858 Advanced Receiver Transcoder. It describes the most common applications and interfaces of the receiver.

In This Chapter

This chapter contains the following topics.

Topic	See Page
D9858 Advanced Receiver Transcoder	2-2
Transport Stream Outputs	2-4
Control and Management Interfaces	2-5

D9858 Advanced Receiver Transcoder

General Description

The PowerVu® Model D9858 Advanced Receiver Transcoder provides the ability to deliver MPEG-4 HD services to MPEG-2 CATV head-ends. The Model D9858 receiver will extend the distribution options for MPEG-4 HD from solely MPEG-4 environments to existing MPEG-2 networks. Support for simultaneous dual-channel transcoding will provide the advantage of density for locations requiring more than just a single channel. A video and two audio monitoring outputs are available for confidence monitoring of the decrypted incoming MPEG-4 HD program.

Digital Cable/Telco Program Distribution

The ASI and MPEGoIP transport outputs provide a number of modes including the capability of carrying up to two decrypted transcoded programs for digital tier distribution. This helps the compressed video programs to be efficiently distributed to subscribers equipped with digital set-top boxes. Digital Program Insertion (DPI) information is also be available along with the video and audio PIDs (Packet Identifiers) for external ad insertion in compressed digital format. Digital audio passthrough is supported with sync to the transcoded program output. Compliant PSI/SI regeneration provides easy integration into a digital tier distribution network for two transcoded programs.

Key Features

The D9858 Advanced Receiver Transcoder provides the following key features:

- Four L-Band inputs
- DVB-S QPSK demodulation
- DVB-S2 QPSK/8PSK demodulation
- PowerVu® conditional access with DES or DVB descrambling
- PowerVu uplink control of transcoding configuration and management
- Decryption and transcoding of up to two programs for digital transport output
- PSI/SI regeneration for both programs
- Dolby® Digital (AC-3) audio decoding for moniroring
- Audio passthrough synchronization for transcoded programs
- Field upgradeable software and security
- Front panel LCD for control & monitoring
- Additional ASI outputs for redundancy
- MPEGoIP output for network connectivity
- Contact closure terminals for simple alarm monitoring

Software Update

All software in the D9858 Advanced Receiver Transcoder is stored in non-volatile memory that can be electrically programmed. New software releases for the D9858 Advanced Receiver Transcoder can be downloaded via the Ethernet 10/100/1000 BaseT Management interface.

Transport Stream Outputs

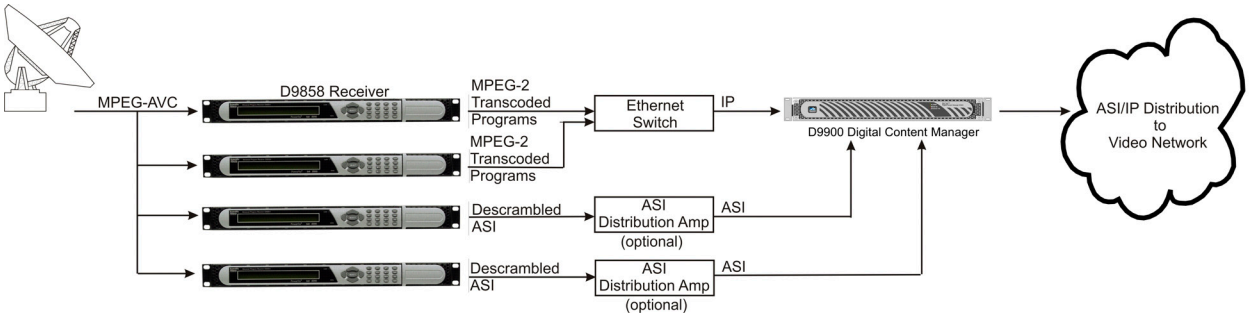
DVB-ASI Transport Stream Output

The D9858 Advanced Receiver Transcoder has three DVB-ASI outputs. These outputs can be used as inputs for multiplexers, groomers or other types of DVB-ASI reception equipment.

MPEGoIP Output

The MPEGoIP output provides a number of output modes including the capability of carrying a decrypted program for digital tier distribution. This helps ensure that compressed video programs are efficiently distributed to households equipped with digital set-top boxes. Digital Program Insertion (DPI) information will also be available along with the video and audio PIDs (Packet Identifiers) for external ad-insertion in compressed digital format.

The diagram below shows an example of the D9858 transcoder used in an ASI or MPEGoIP application.



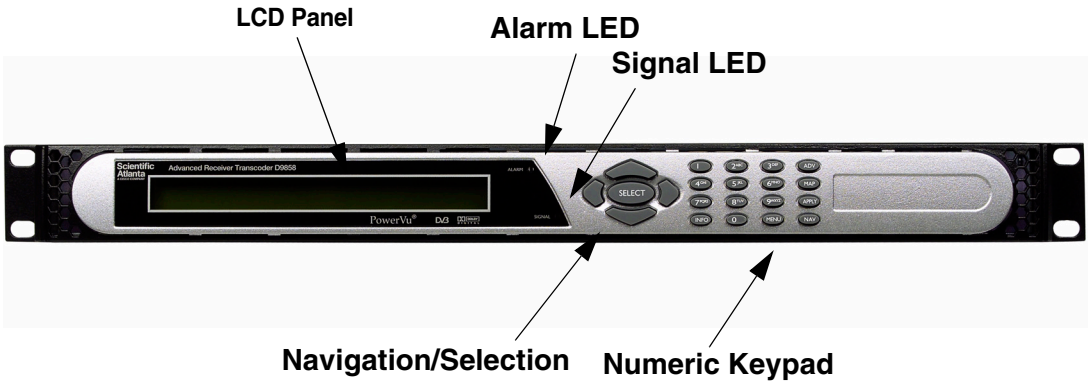
Ethernet

The Management interface for the D9858 Advanced Receiver Transcoder is the 10/100/1000 BaseT Ethernet interface. It is used for upgrading the software application. SNMP or Web GUI control is not supported in this software release.

Front Panel Control

The front panel keypad and LCD is used to control the operating parameters of the D9858 transcoder.

The following diagram shows the front panel with its different sections.



Chapter 3
Installation

Overview

Introduction

This chapter describes how to install the D9858 Advanced Receiver Transcoder. Before installing the D9858 transcoder, read all the safety precautions and guidelines thoroughly.

Qualified Personnel

Only appropriately qualified and trained personnel should attempt to install, operate or maintain the D9858 Advanced Receiver Transcoder.

> ⚠ **WARNING:**
>
> **Allow only qualified personnel to install this product. Otherwise, personal injury or equipment damage may occur.**

In This Chapter

This chapter contains the following topics.

Topic	See Page
Section A - Rack Installation	3-2
General	3-2
Section B - Rear Connector Panel	3-5
Overview	3-5
Section C - Connecting the Input/Output Signals	3-7
Connecting the RF Inputs	3-7
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Connecting the Video Outputs	3-8
Connecting the Audio Outputs	3-9
Connecting the Ethernet Management Interface	3-10
Connecting the IP TS Output	3-11
Connecting the ASI Outputs	3-12
Connecting an External Alarm System	3-13

Section A - Rack Installation

General

Power Connection

To operate the transcoder, you must connect it to an AC power source. For information about connecting the chassis to AC power, see Appendix A - Technical Specifications.

As Cisco units are designed for continuous operation, some products do not have a power switch. In this case the mains cord and/or DC power supply cable serve(s) as the mains disconnect device.

WARNING:

Make sure that at least one end of the power cable(s) remains easily accessible for unplugging, if you need to switch off the unit. For example: Ensure that the socket outlet is installed near the product.

WARNING:

To avoid electrical shock, connect the three-prong plug on this product to an earth-grounded three-pin socket outlet only.

Installing the D9858 Advanced Receiver Transcoder

Rack Mounted

The D9858 Advanced Receiver Transcoder is a 1U unit with connector access at the rear panel. The transcoder is intended for mounting in a standard 19" rack with minimum 1U spacing between units to allow adequate ventilation/air flow.

Cooling

The D9858 Advanced Receiver Transcoder is cooled by the use of internal fans. The air intake is from the front and the air outlet is on the rear.

Note: Adequate cooling must be provided equalling 107 W (maximum) at 25°C per unit to avoid overheating.

> ⚠ **CAUTION:**
>
> **The inlet air temperature must not exceed 50°C/122°F at any time.**

Grounding

You must ensure that the unit is properly connected to ground in order to meet safety and EMC requirements. Before any other connection is made, the unit must be connected to a protected ground terminal as described below:

- Via the three wire power cord of the AC power supply. This connection is mandatory.
- In addition, via the protective ground terminal on the rear panel of the unit. This connection provides additional protection of the equipment.

To Mount the D9858 Advanced Receiver Transcoder

To mount the D9858 Advanced Receiver Transcoder in a rack, do the following:

1. Mount L-brackets in the rack to support each D9858 transcoder to be installed.
2. Place the transcoder in its position in the rack.
3. Mount the transcoder securely to the rack by securing the mounting flanges to the rack using the four screws provided.
4. Make sure the air outlet holes on the back of the transcoder are not obstructed to allow air flow from the front to the back of the chassis.

To Connect AC Power

To connect AC power to the D9858 Advanced Receiver Transcoder do the following:

1. Connect the power cord (supplied with the D9858 Advanced Receiver Transcoder) between the rear panel power receptacle and a 100 to 120/200 to 240 V AC power outlet.
2. Make sure that the power cable is connected to protective ground.
   See **Grounding**, page 3-3 for more information.

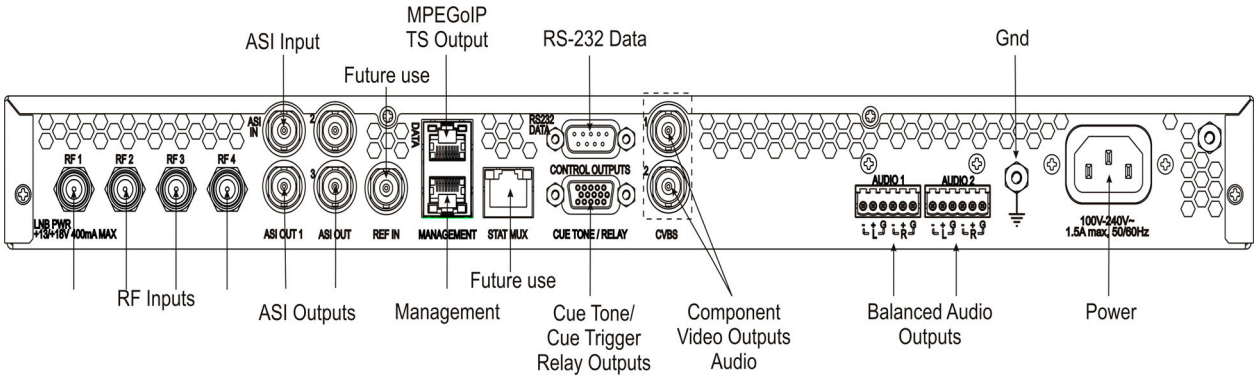
The D9858 transcoder is equipped with one power suppy located in the rear of the chassis. Note the location of the power supply in the event of alarms/warnings resulting in replacement of a power supply. Alarm messages appear in the Message Log.

Section B - Rear Connector Panel

Overview

D9858 Advanced Receiver Transcoder Rear Connector Panel

The following diagram shows the rear connector panel of the D9858 transcoder.



Connectors

The following table describes the function and type of the various connectors.

Connector	Function	Connector Type
RF Inputs	Each input accepts an LNB signal input. RF1 provides LNB power for use when no external LNB power source is available. RF2 to RF4 require an external LNB power source.	F
Reference Input	For future use.	BNC
ASI Input	Asynchronous Serial Interface Input.	BNC
ASI Outputs	Three Asynchronous Serial Interface Outputs.	BNC
Management	For upgrading the software application (code downloading) for the D9858 Advanced Receiver Transcoder.	RJ45
Cue Tone/Cue Trigger Relay Outputs	Program relay provides programmed responses for alarms, cue trigger states for ad-insertion equipmnent, or a cue tone output for connection to ad-insertion equipment.	9-pin sub-D female

Connector	Function	Connector Type
RS-232 Data	RS-232 data output: 7 bits, even parity, 1 stop bit, up to 38.4 kbps. These outputs are user-configurable via the Setup menu on the front panel.	9-pin sub-D female
Composite Video Outputs	CVBS 1 and CVBS 2 provide two identical SD composite video outputs for monitoring applications.	BNC
Balanced Audio Outputs	Audio 1 and Audio 2 provide two stereo pairs or four mono channels.	Terminal Blocks
Gnd	Screw	Grounding point for the transcoder.
Power	AC power	IEC 60320 Sheet 14

Section C - Connecting the Input/Output Signals

Connecting the RF Inputs

Do as follows to connect to the RF inputs:

1. Connect up to four LNB RF cables to the RF connectors labelled RF1 through RF4 on the rear of the unit.

   Use 75-ohm (braid/foil or braid/braid), low insertion loss coaxial cable.

   Each input accepts an LNB signal input. RF2 to RF4 require an external LNB power source.

Connecting the ASI Input

Do as follows to connect to the ASI input:

1. If desired, connect to the ASI IN port to an asynchronous serial interface for uplink monitoring.

Section D - Connecting the Input/Output Signals

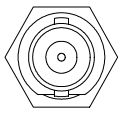
Connecting the Video Outputs

Connector for the Video Outputs

The video output connectors are of the BNC type.

Video Connector

The following table shows the video connector.

Connector	Interface type	Connector type
	SMPTE 292M	BNC female

To Connect the Composite Video Ouput

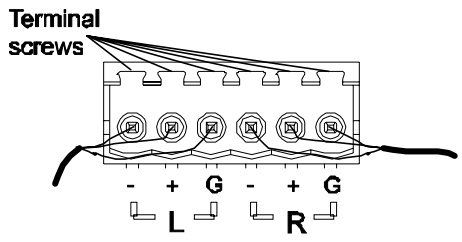
Do as follows to connect to the Composite Video Output:

1. Connect a video monitor to the CVSB 1 and CVSB2 connectors. The two outputs are identical.
   Use a 75-ohm double-braided coax cable.

Connecting the Audio Outputs

To Connect the Balanced Audio Output

1. Connect the AUDIO 1 and AUDIO 2 balanced audio outputs to monitoring equipment. Use a multi-conductor, pluggable cable from the transcoder's AUDIO 1 and AUDIO 2 (Left and Right) terminals to your equipment, as shown in the following illustration.

Connector	Connector type
	Terminal Block

2. Feed the stripped ends of the positive, negative and ground wires into the appropriate terminals as labelled, and then screw the terminal screws (located on the top of the terminal block) finger tight to each wire.

Connecting the Ethernet Management Interface

The Ethernet Interface

The RJ-45 interface for 10/100/1000BaseT Ethernet is currently intended for upgrading/downloading the software application.

Hint: If you experience problems with the 10 BaseT Ethernet it is advised that you change it to a 100 BaseT connection.

Note: You must set up the IP address, the default gateway and the subnet mask to match the network connection. This is done through the front panel menu. For further information, see **IP**, page 4-35.

Informative Notes

Proper cables are required for reliable Ethernet operation; to run over a maximum segment length of 100 m the cable has to comply with the EIA/TIA Category 5E wire specifications.

To Connect the Ethernet Interface

1. Connect a crossed RJ-45 cable between the Ethernet connector on the D9858 Advanced Receiver Transcoder and the Ethernet port of your PC.

Note: You need a crossover cable if you want to connect the Ethernet interface of the D9858 Advanced Receiver Transcoder directly to another Ethernet device without using a hub or switch.

You need to set up the IP address on the D9858 Advanced Receiver Transcoder (via the front panel display). For information on setting up the IP address via the front panel, see **IP**, page 4-35.

Connecting the IP TS Output

The Ethernet Interface

The RJ-45 interface IP TS OUT is 10/100/1000BaseT Ethernet. It is intended for output of the transport stream encapsulated in IP packets to a groomer (e.g., Digital Content Manager 9900) for distribution.

Informative Notes

For reliable Ethernet operation; to run over a maximum segment length of 100 m the cable has to comply with the EIA/TIA Category 5E wire specifications.

To Connect the Ethernet Interface

1. Connect a crossed RJ-45 cable between the Ethernet connector on the D9858 transcoder and the Ethernet port of the equipment after the D9858 transcoder.

The equipment after the D9858 Transcoder could be an IP router or a switch.

Connecting the ASI Outputs

To Connect the ASI Output

Do as follows to connect to the ASI outputs:

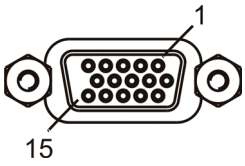
1. Connect the output signal from the D9858 Advanced Receiver Transcoder ASI OUT connectors. All three outputs, ASI OUT 1, 2 and 3 are identical.
2. Use a Belden "Brilliance" cable with foil/braid construction. The shield must provide 99% or better shielding effectiveness.

   The equipment after the D9858 Advanced Receiver Transcoder could be a Model D9887 HDTV Modular Receiver or Model D9854 Advanced Program Receiver.

Connector for an External Alarm System

The D9858 Advanced Receiver Transcoder is equipped with a connector labeled Cue Tone/Relay which provides alarm relay outputs for remote alarm signaling. This connector provides Cue Tone, Cue Trigger and Alarm relay functionality. See **Pin allocation, RS-232 Data connector**, page 3-14 for more information on Cue Tone and Cue Trigger equipment connections. These outputs are user-configurable via the Setup Menu on the front panel.

The Alarm output connector is a 15-pin sub-D female connector. The following diagram shows the connector and the pin allocation table for the Alarm output pins.

Connector	Normally closed pin	Common pin	Normally open pin
	11	10	15

1. Connect the cable from the external alarm system to the alarm connector.

Connecting the RS-232 Data Interface

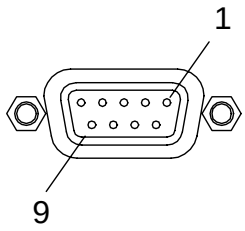
The RS-232 Data Interface

The DCE DB-9 female connector is intended for low-speed data: 7 bits, even parity, 1 stop bit, up to 38.4 kbps (default). These outputs are user-configurable via the Setup Menu on the front panel.

The interconnect cable from the D9858 transcoder to a PC should be straight through (i.e., no handshaking), shielded and equipped with a DB-9 male connector at one end to mate with the rear panel RS-232 Data interface, and a female DB-9 connector to connect to the PC.

Pin Allocation, RS-232 Data Connector

The table shows the RS-232 Data connector and the pin allocation:

Connector	Pin	Pin allocation
	1	Not connected
	2	TxD
	3	RxD
	4	Not connected
	5	Ground
	6	Not connected
	7	Not connected
	8	Not connected
	9	Not connected

Chapter 4
Front Panel Operation

Overview

Introduction

This chapter describes how to set up the D9858 Advanced Receiver Transcoder using the front panel keys and display. This information is primarily applicable for standalone operation.

In This Chapter

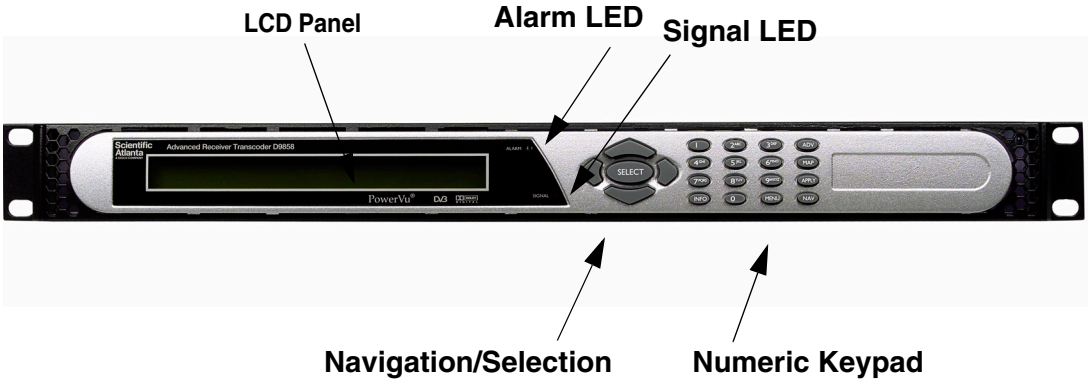
This chapter contains the following topics.

Topic	See Page
About the Front Panel	4-2
Keypad Convention	4-4
Startup Screen	4-6
Main Menu	4-10
Status Menu	4-11
Setup Menu	4-21
About Menu	4-81
Versions Menu	4-83
Diagnostics Menu	4-85

About the Front Panel

Introduction

The D9858 transcoder is operated using controls and indicators on the front panel. These include the numeric keypad, the Navigation/Selection keypad, the LCD, the Alarm and Signal indicators. These are shown in the following illustration.



LCD

The LCD provides information on the selections available at any menu level, current settings for parameters, and certain status and alarm indications. This is a 2x40, backlit LCD display. The top line may be status data or identifier information. It can also display optional functions available for tuning operations. The bottom line will show selections or parameter values available using the navigation/ selection keypad. The items are selected by pressing the **SELECT** (center key) or **DOWN** arrow key on the navigation/selection keypad.

Keypad

The numeric keypad is used to enter alphanumeric values. The **MENU** key sets the software to the initial menu and returns you to the previous menu. The **MENU** key can also be used to cancel a numeric entry at any point during the entry sequence, and the **LEFT** arrow key allows backspacing through the entry.

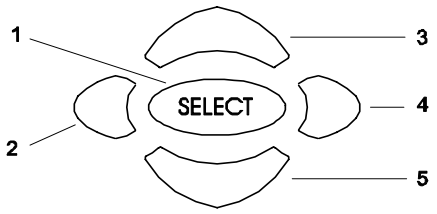
Front Panel LEDs

The functions of the LEDs are described in the table below.

LED	Signal State/Color	Explanation
ALARM	Red	Solid for five seconds indicates a Warning.
	Red	Flashing indicates an Alarm.
SIGNAL	Green	Solid indicates all of the following conditions: • all RF inputs are enabled, all inputs are locked to a signal, and are not muted. • all outputs are operating without an error.
	Green	Flashing indicates one of the following conditions: • difficulty with an input or output. • one or more RF inputs, or the ASI input are not synchronized. • one or more outputs are muted by a fault condition. • no RF signal is present or detected, or it is muted. • receiver is not authorized to receive the program.
	Off	Off indicates all of the following conditions: • no RF input signal is available, enabled or detected, or the input is muted. • no ASI input is present • no valid inputs are available.

Navigation/Selection Keypad

The navigation keys (**LEFT**, **RIGHT**, **UP** and **DOWN**) and the **SELECT** key are the primary controllers. Each navigation key performs various functions, depending on the current state of the menu system (i.e., sometimes the left navigation key backspaces over an entry and sometimes moves the cursor to a different menu item). Once the cursor is over the desired function, pressing the **SELECT** (center key) key selects the current item. Pressing the **SELECT** key stores any entered values.



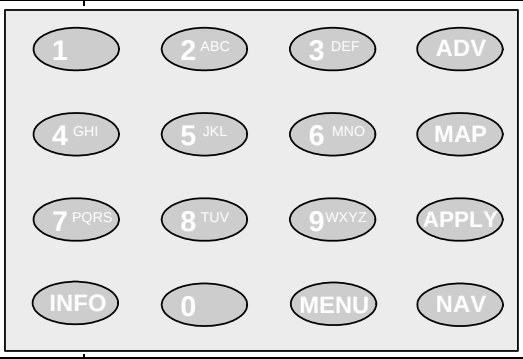
Keypad Convention

Overview

Throughout this manual, there are references to parts of a keypad on the front of the transcoder. This is the Navigation/Selection keypad (see diagram at right), which changes its function, depending on the current state of the menu. For clarity, the following table shows which parts of this integral interface are being referenced by which term.

Keypad Button	Function
SELECT	Runs the highlighted command or opens the highlighted menu.
LEFT arrow	When moving through menus, highlights the menu item to the left. When entering data, moves the cursor to the left. In some menus, backspaces over the data entry.
UP arrow	Highlights the menu item above.
RIGHT arrow	When moving through menus, highlights the menu item to the right. When entering data, moves the cursor to the right.
DOWN arrow	Highlights the menu item below.

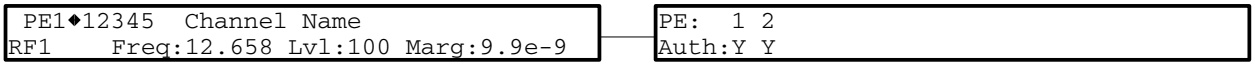
Key	Function	Keypad Button
LEFT arrow	Press the key on the left side of the Navigation/Selection Keypad.	
RIGHT arrow	Press the key on the right side of the Navigation/Selection Keypad.	
UP arrow	Press the key on the top of the Navigation/Selection Keypad.	
DOWN arrow	Press the key on the bottom of the Navigation/Selection Keypad.	
SELECT	Press the key in the center of the Navigation/Selection Keypad.	

Key	Function	Keypad Button
INFO	Press the key on the lower left of the numeric keypad for context-sensitive help messages, when available. When entering characters in numeric or alphanumeric fields, this key can be used to toggle between upper and lower case.	
MENU	Press the key on the lower right of the numeric keypad. Starts the on-screen display. Also functions as the Escape key so you can back out of menus and data entry fields.	
Alphanumeric Entry	Pressing the numeric keys 2-9 once will enter the respective digit into a data entry field. Pressing these buttons again will enter the first of the letters displayed beside the number. Repeatedly pressing the button will toggle through all of that key's possible choices. When entering text, the 1 button can be used to insert spaces (press twice). To delete a character, press 0 twice.	
ADV	Toggles between Program Entry and Channel number.	
MAP	Edit, insert and delete Digital Program Mapping (DPM) Modes on Program Entries or on PIDS within Program Entries.	
APPLY	Activates current changes without having to exit the menu.	
NAV	For future use.	

Startup Screen

Menu Structure

On power-up and initialization, the startup screen is displayed similar to that shown below. The screen also indicates the signal status.



Startup Screen Channel Authorization Status Screen

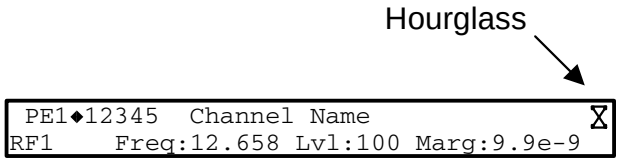
Channel Authorization Status

From the startup screen, press the right or left arrow keys on the front panel keypad to move to the PE entry authorization status screen. This screen indicates whether the decode channel and other selected channels are authorized.

Auth Status	Description
Y	Indicates the channel is authorized.
N	Indicates the channel is not authorized.

LCD Panel

The LCD panel displays basic signal and program information in the LCD display, as described in the following illustration:



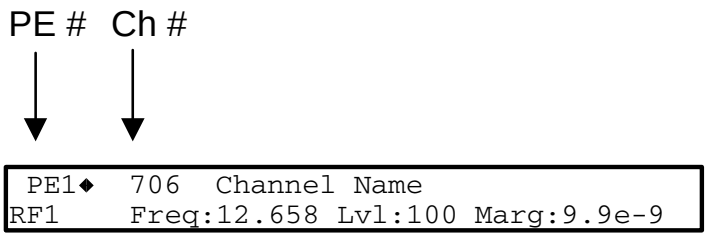
LCD Setting	Description
PE	PE. The transcoder supports two Program Entries (PE1 and PE2). PE1 is the decode channel and is available at the analog outputs. PE2 is available for the second transcoded channel on the ASI output.
12345	Channel for program monitoring.
Channel name	Name of the monitored program.

LCD Setting	Description
RF	Active RF input port. Note: ASI will be shown if the ASI input port is active.
Freq:	Downlink frequency of the tuned signal in GHz
Lvl:	Signal level
Marg:	Carrier-to-noise (C/N) margin in dBm
Hourglass	Indicates that parameters are being saved in the background. You can continue to perform any operation desired. Note: If a power- cycle/interruption occurs while the hourglass is displayed, some parameters may not be saved. Refrain from powering off the unit while the hourglass is displayed.

Assigning a Program Channel to a Program Entry

To assign a program to a Program Entry:

1. Press MENU until you display the startup screen.
   PE1 (the decode Program Entry) is initially displayed.
2. Press the ADV key on the front panel keypad and then the UP or DOWN arrow keys to scroll through the PEs available.
3. Press the SELECT key to select a PE (PE1 or PE2) and then the RIGHT arrow key to move to the right and scroll through the available program channels.

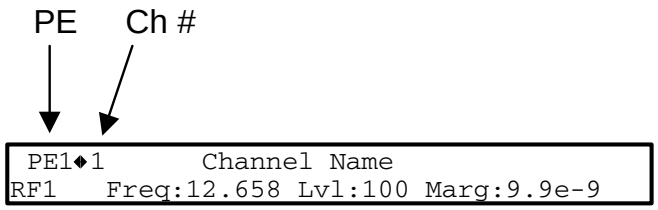


4. Directly enter the channel number using the 0 to 9 keys), followed by the program channel for the selected PE.
5. Repeat this process to select a program channel for the two PEs, PE1 and PE2.

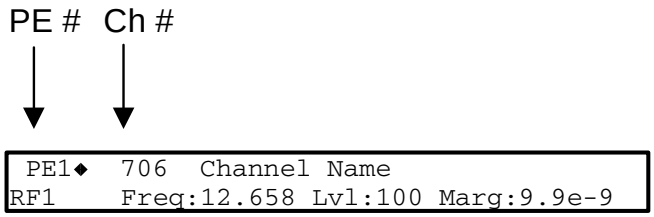
Deleting a Program from a Program Entry

To delete a program:

1. Press MENU until the startup screen appears.



2. Navigate to the PE and the program that you want to delete.



3. Press SELECT to select the program number.
4. Press MAP to delete the program or alternatively enter program number 0 in the PE entry to delete it. You can also use the MAP key to re-insert a program after you have deleted it by simply pressing MAP again.

Program Entry Output Mode

A program can be set to one of four output modes, either Drop, Pass, Map, or XCode respectively.

LCD Setting	Description
Drop	Removes the service and its associated PMT reference from the transport output.
Pass	Permits the source content and PMT reference to appear in the transport output with the same references unless the source material is MAPped on another PE.

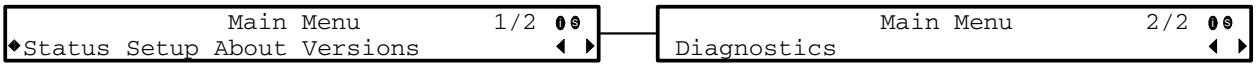
LCD Setting	Description
Map	Provides the flexibility to define all the outgoing PID numbers for a PE, including those not currently on transmission.
XCode	Provides the flexibility to define all the outgoing PID numbers for a PE, including those not currently on transmission, as in Map mode, plus the video PID is transcoded to output at the rate and settings defined for the transcode channel.

See **PE Resync: All, Template, PIDs, Svcs**, page 4-64 and **Setting Up Transcoding**, page 4-71 for more information.

Main Menu

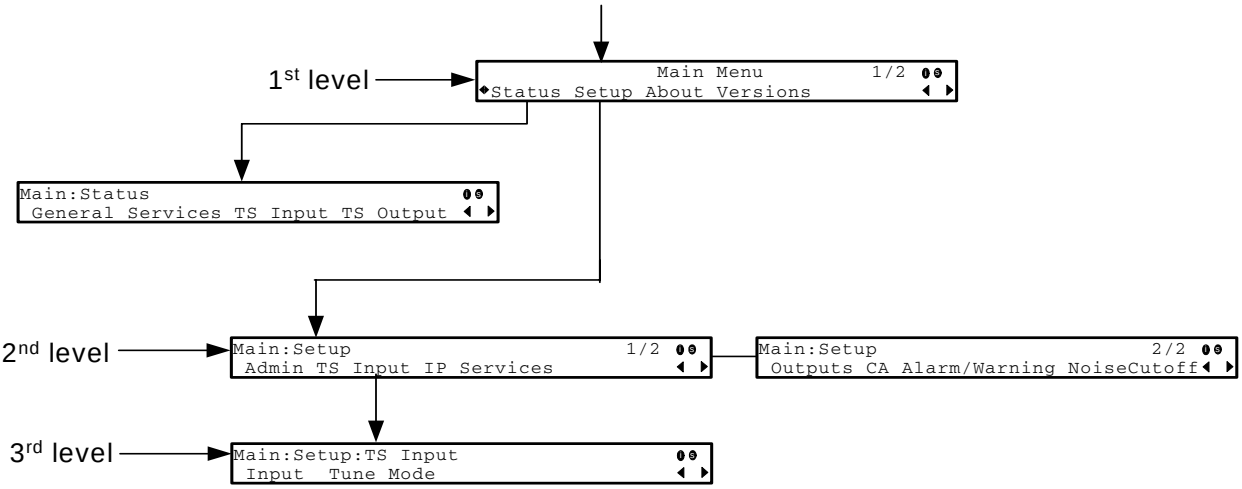
Structure

Operation of the D9858 Advanced Receiver Transcoder begins at the Main menu. From the startup screen, press the MENU key to view the Main menu.



Menu Selection

Select the desired function by moving the cursor left or right by pressing the LEFT or RIGHT arrow key. Once a selection is made by pressing the SELECT key, the LCD presents the second menu level for the selected function. Succeeding levels for each function include all the heirachical levels for the function in the front panel LCD. For example, the TS Input level is shown as Main: Setup: TS Input, with each succeeding level separated by a colon (:), as shown in the example below. The front panel menus are described on the following pages.



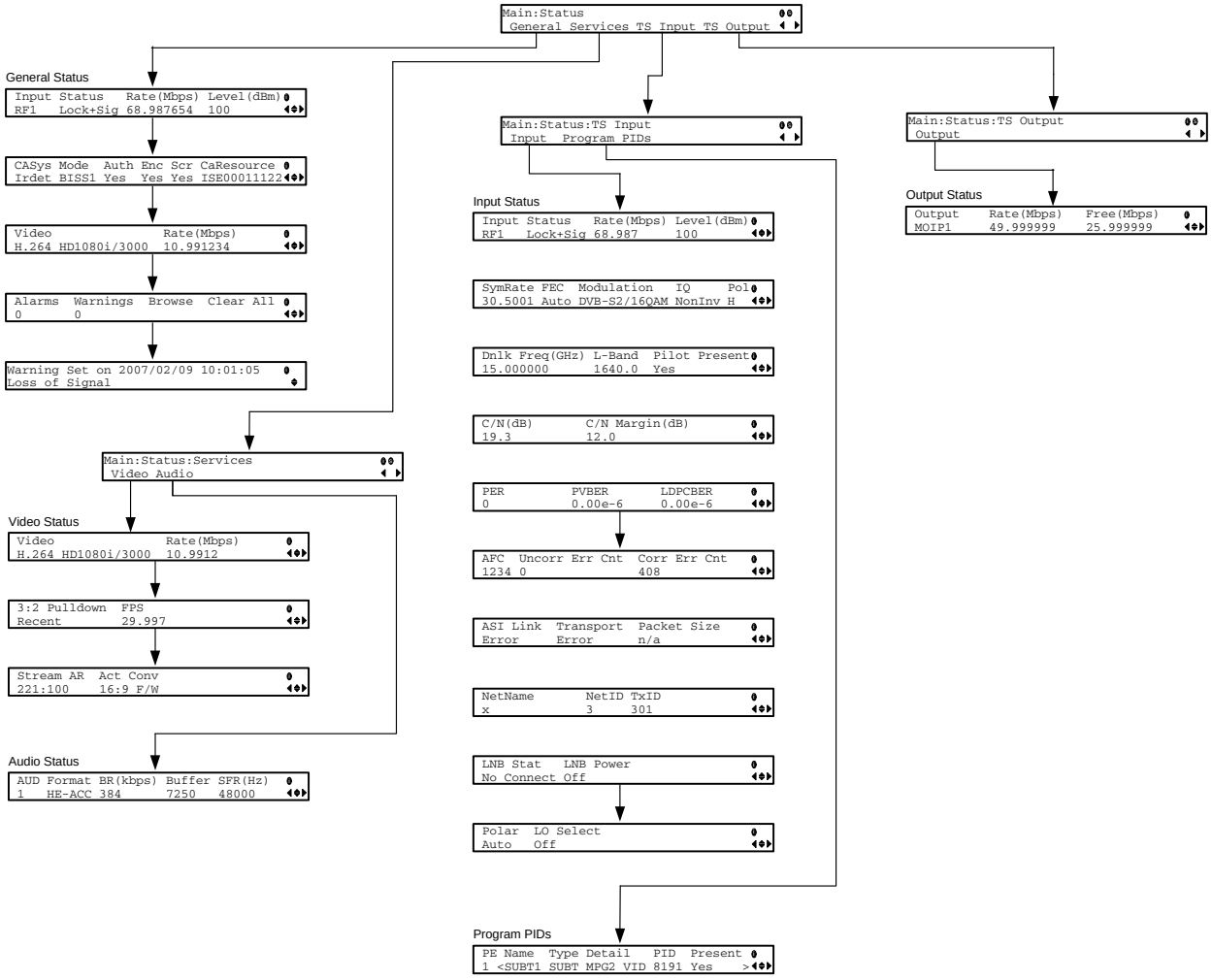
Status Menu

Structure

To view the Status menu from the Main menu, press the SELECT key. The Status menu indicates the status of the input and output signals, the video and audio services, and allows you to browse and/or configure the alarms and warnings.

The Status menu is split into four parts; General, Services, TS Input and TS Output. Each parameter is described in this section. For instructions on how to select and store settings, see **About the Front Panel**, page 4-2.

The Status menu has the following structure:



GENERAL

Input

Description: Indicates the active input port receiving the signal.

Status

Description: Indicates the current signal lock status for the selected RF input.

Parameters: Signal Lock - see table.

Status	Description
Locked	Indicates the transcoder is locked to a carrier with no valid content.
Lock+Sync	Indicates the transcoder is locked to a carrier with valid content.
No Lock	Indicates the transcoder is not locked to a carrier.

Rate

Description: Indicates the bit rate of the received input signal

Parameters: Mbps.

Level

Description: Indicates the signal level of received signal.

Parameters: dBm.

CASys

Description: Indicates the Conditional Access (CA) system used for the received signal.

Parameters: SA or BISS.

Mode

Description: Indicates the type of CA used for the received signal, e.g., SA or BISS.

Auth

Description: Indicates whether the transcoder is authorized to receive the signal.

Parameters: Yes or No.

Enc

Description: Indicates whether the received signal is encrypted.

Parameters: Yes or No.

Scr

Description: Indicates whether the received signal is scrambled.

Parameters: Yes or No.

CAResource

Description: Indicates the Conditional Access resource associated with the program.

Parameters: FTA, SA or Auto.

FTA - Free to Air

SA - Scientific Atlanta proprietary conditional access

Video

Description: Indicates the input stream type and source resolution of the received signal/program.

Parameters: SD480i/2997, SD480i/3000, SD576i/2500, HD720p/5000, HD720p/5994, HD720p/6000, HD1080i/2500, HD1080i/2997, HD1080i/3000, Unknown or Unsupported.

Rate

Description: Indicates the bit rate of the received video program.

Alarms

Description: Displays the number of currently active Alarms.

Warnings

Description: Indicates the number of currently active Warnings.

Browse

Description: Select this option to scroll through the current alarms and warnings.

Clear All

Description: Select this option to clear all the current warnings and alarms. You will be prompted to verify whether you want to clear all the alarms and warnings.

Parameters: Abort, Continue. Select Abort to cancel the operation or Continue to clear all the warnings and alarms.

Status Menu: Services

SERVICES

VIDEO

Video

Description: Indicates the input stream type and source resolution of the received signal/program.

Parameters: SD480i/2997, SD480i/3000, SD576i/2500, HD720p/5000, HD720p/5994, HD720p/6000, HD1080i/2500, HD1080i/2997, HD1080i/3000, Unknown or Unsupported.

Rate

Description: Indicates the bit rate of the received video program.

3:2 Pulldown

Description: Indicates whether 3:2 pulldown mode is detected.

Parameters: Yes, No or Recent.

FPS

Description: Indicates the frame rate in frames per second.

Stream AR

Description: Indicates the stream aspect ratio. This is the conversion that the transcoder will perform on the incoming signal for the picture to be displayed correctly (i.e., to correspond to the aspect ratio of your TV) on your TV, based on your selection.

Parameters: 4:3, 14:9 or 16:9.

Act Conv

Description: This is the type of aspect ratio conversion that the transcoder will perform based on your selection.

Parameters: None, 4:3 L/B, 4:3 P/B, 14:9, 14:9, 4:3 F/H, or 16:9 F/W.

AUDIO

AUD

Description: Indicates the audio channel within the stream when the signal contains more than two audio pairs.

Parameters: AUD1 for audio channel Aud1.

AUD2 for audio channel Aud2.

AUD1 to AUD4 for two stereo audio channels.

Format

Description: Indicates the received audio channel format.

Parameters: MPEG, AC3, AAC, HEAAC or DDP.

BR

Description: Indicates the audio bit rate of the received audio channel.

Parameters: Kbps.

Buffer

Description: Indicates the audio input buffer level.

Parameters: bytes.

SFR

Description: Indicates the audio sampling frequency.

Parameters: 32, 44.1 or 48 kHz.

TS INPUT

INPUT

Input

Description: Indicates the active input port receiving the signal.

Parameters: RF1, RF2, RF3, RF4 or ASI.

Status

Description: Indicates the current signal lock status for the input.

Parameters: Signal Lock - see table.

Status	Description
Locked	Indicates the transcoder is locked to a carrier with no valid content.
Lock+Sync	Indicates the transcoder is locked to a carrier with valid content.
No Lock	Indicates the transcoder is not locked to a carrier.

Rate

Description: Indicates the bit rate of the received input signal.

Parameters: Mbps.

Level

Description: Indicates the signal level of received signal.

Parameters: dBm.

SymRate

Description: Indicates the Symbol Rate of the received signal.

Parameters: Msymbols/second.

FEC

Description: Indicates the FEC (Forward Error Correction) rate of the received signal.

Parameters: N/A, 1/2, 2/3, 3/4, 5/6, 7/8, 8/9 or Auto.

Modulation

Description: Indicates the modulation type for the received signal.

Parameters: N/A, QPSK, 8PSK, DVB-S or DVB-S2.

IQ

Description: Indicates the IQ (Input Signal Inversion) for the received signal.

Parameters: Inv, NonInv or Auto.

Pol

Description: Indicates the signal polarization setting. This setting is only applicable when LNB Power is set to H-NIT or V-NIT. The selected setting must match the polarization of the transmitted signal.

Parameters: Hor, Vert or Auto.

Dnlk Freq

Description: Indicates the current downlink frequency.

Parameters: GHz.

L-Band

Description: Indicates the current L-Band frequency.

Parameters: MHz.

Pilot Present

Description: Indicates whether a Pilot is present for the received signal. The Pilot is set on the modulator for input signal synchronization purposes.

Parameters: Yes or No.

C/N

Description: Indicates the current Carrier-to-Noise rate.

Parameters: dBm.

C/N Margin

Description: Indicates the current Carrier-to-Noise Margin for the received signal. The Carrier-to-Noise margin is the actual distance that C/N is from the noise threshold.

Parameters: dBm.

PER

Description: Indicates the current PER (Packet Error Rate).

Parameters: bps.

PVBER

Description: Indicates the PV (Post-Viterbi) BER for the received signal (DVB-S) and LDPC for the selected input (DVB-S2).

Parameters: bps.

AFC

Description: Indicates the current Automatic Frequency Control count.

UEC

Description: Indicates the current Uncorrected Error Count for the received signal.

CEC

Description: Indicates the current Corrected Error Count for the received signal.

Clear Counts

Description: Select this option to clear the error counters. You will be prompted to confirm the operation.

Parameters: Yes, No.

Net Name

Description: Indicates the name assigned to the network.

Parameters: Up to 12 alphanumeric characters.

ASI Link

Description: Indicates whether there is a transport stream link error.

Parameters: Yes, No or N/A.

Transport

Description: Indicates the current transport synchronization status

Parameters: Sync - No Sync, Normal or N/A.

Packet Size

Description: Indicates the packet Size (in bytes) for the selected input.

Parameters: 188 bytes or 204 bytes.

NetID

Description: Indicates the Network ID of the uplink signal the transcoder is to receive when using the selected preset. The transcoder's Network ID must match the Network ID associated with the transmitted signal that identifies the NIT to be used.

Note: Each network must be assigned a unique ID (number).

Parameters: 1 to 65535.

TxID

Description: Indicates the Transport ID.

Parameters: 1 to 65535.

LNB Stat

Description: Indicates the current LNB connection status.

Parameters: Overload, OverTemp, No Connect, Normal or N/A.

LNB Power

Description: Indicates the LNB voltage at the received input port.

Parameters Off, 13V or 18V.

Polar

Description: Indicates the polarity of the received signal.

Parameters: Hor, Vert or Auto.

LO Select

Description: Indicates whether a 22 kHz tone is available on input port RF1. This is applicable for dual-band applications.

Parameters: On, Off or Auto.

PROGRAM PIDS

PE

Description: Indicates the Program Entry number.

Parameters: 1 to 4.

Name

Description: Indicates the name assigned to the Program Entry.

Parameters: Up to 4 alphanumeric characters.

Type

Description: Indicates the type of program associated with incoming PID.

Parameters: PMT, PCR, VID, AUD, SUBT, CDT, ECM, EMM, DATA, MPE, VBI or DPI.

Detail

Description: Indicates any detail associated with the program PID (e.g., MPG2 PID).

Parameters: MPG1 VID, MPG2 VID, 422 VID, H264 VID, HD VID, MPG4 VID, MPG AUD, MPG2 AUD, DVB AC3, DVB DDP, AAC AUD, HEAAC, AUD, MPG4 AUD, DBE AUD, DTS AUD, DVB TXT, DVB VBI, DVB SUBT, DVB ASYN, DVB SYNS, DVB SYND, DVB MPE, DVB DCAR, DVB OCAR, SA VBI, ATSC AC3, ATSC DDP, SA UTLD, SCTE DPI, SA HSD, SA CDDL, SA WBD, SA SUBT, ECM, EMM, PCR, or UNKNOWN.

PID

Description: Indicates the program PID number.

Parameters: 1 to 8192.

Pres

Description: Indicates whether the PID is present in the incoming stream.

TS OUTPUT

OUTPUT

Output

Description: Indicates the output type.

Parameters: ASI or MPEGoIP.

Rate

Description: Indicates the current output bit rate.

Parameters: 0 to 213 Mbps.

Free

Description: Indicates the available bit bandwidth (no stuffing).

Parameters: Mbps.

OUTPUT PIDS

PROGRAM PIDS

PE

Description: Indicates the output Program Entry number.

Parameters: 1 to 4.

Name

Description: Indicates the name assigned to the Program Entry.

Parameters: Up to 4 alphanumeric characters.

Status Menu: TS Output

Type

Description: Indicates the type of program associated with incoming PID.

Parameters: PMT, PCR, VID#1, AUD#, SUBT, CDT, ECM, EMM, DATA, MPE, VBI or DPI.

Detail

Description: Indicates any detail associated with the output PID.

Parameters: MPG1 VID, MPG2 VID, 422 VID, H264 VID, HD VID, MPG4 VID, MPG AUD, MPG2 AUD, DVB AC3, DVB DDP, AAC AUD, HEAAC, AUD, MPG4 AUD, DBE AUD, DTS AUD, DVB TXT, DVB VBI, DVB SUBT, DVB ASYN, DVB SYNS, DVB SYND, DVB MPE, DVB DCAR, DVB OCAR, SA VBI, ATSC AC3, ATSC DDP, SA UTLD, SCTE DPI, SA HSD, SA CDDL, SA WBD, SA SUBT, ECM, EMM, PCR or UNKNOWN.

PID

Description: Indicates the program PID number.

Parameters: 1 to 8192.

Pres

Description: Indicates whether the PID is present in the incoming stream.

Parameters: Yes or No.

Setup Menu

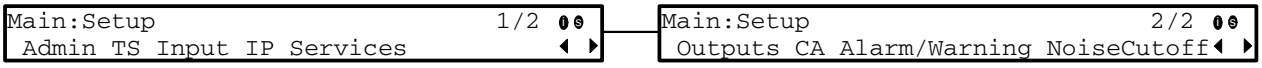
Structure

To view the Setup menu from the Main menu, press the RIGHT arrow key once and the SELECT key. The Setup menu is split into eight parts; Administration, TS Input, IP, Services, Outputs, CA, Alarms/Warnings, and Noise Cutoff. For instructions on how to select and store settings, see **About the Front Panel**, page 4-2.

The Setup menu allows you to set all the parameters associated with the following:

- Administration - lock level, password, factory reset, keypad lock, download mode and date and time
- TS Input - frequency parameters for acquiring and locking on to an RF signal, or receiving an ASI input
- IP - parameters for setting up the Ethernet ports
- Services- audio video, captions, and VBI
- Outputs - parameters for setting up the transport stream out, which includes DPM and transcoding
- CA - conditional access
- Alarms/Warnings - enables alarms/warnings traps and relays
- Noise Cutoff - muting thresholds

The Setup menu has the following structure:



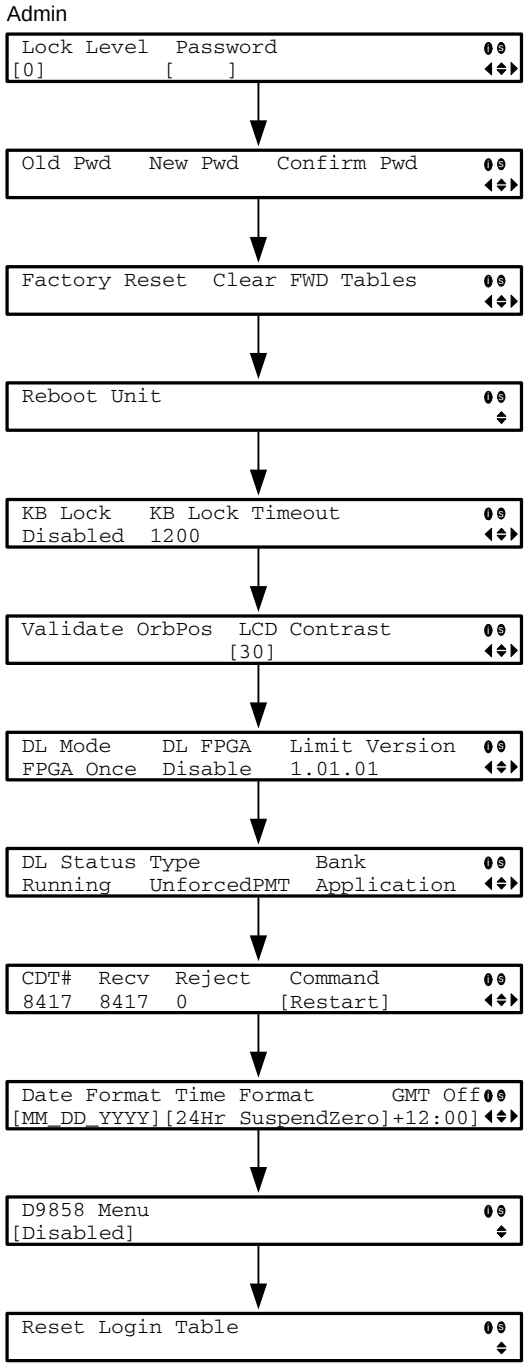
Setup Menu: Admin

Structure

To view the Admin menu from the Main menu, press the SELECT key.

For instructions on how to select and store settings, see **About the Front Panel**, page 4-2.

The Admin menu has the following structure:



Lock Level

Description: Sets the front panel keypad lock level.

Parameters: 0, 1, 2, 3 or 4.

Changing the Password

To change the password, enter the old password (Old Pwd). Next, enter the new password (New Pwd, four digits in the range from 0000 to 9999) and re-enter the new password for confirmation (Confirm Pwd). To change the password, the transcoder must be in Lock Level 0. The default password is 1234.

Factory Reset

Description: Select this option to perform a reset of transcoder settings back to the factory set (default) values. A warning message prompts you to confirm the operation.

Parameters: Reboot Unit - you are prompted to verify the operation.

Abort or Continue.

Clear FWD tables

Description: Select this option to Clear the Forward Tables, which removes stored database information applicable to upgraded software versions. A warning message prompts you to confirm the operation.

Parameters: Abort or Continue.

Reboot

Description: Allows you to reboot the transcoder. You will be asked to confirm the operation.

Parameters: Abort or Continue. Select Continue to reboot the transcoder or Abort to cancel the operation.

KB Lock

Description: Sets the front panel keypad lock state.

Parameters: Enabled or Disabled.

KB Lock Timeout

Description: Sets the keypad lock timeout period. The lock timeout period takes effect when the keypad has not been touched (i.e., a key has not been pressed) when on the Main Menu for the set period. Avoid setting the period to a short duration when the keypad is used often.

Parameters: 5 to 1800 seconds. The default is 60 seconds.

LCD Contrast

Description Adjusts the contrast of the LCD menu panel.

Parameters: 1 (lowest contrast) to 30 (highest contrast).

DL Mode

Description Sets the download mode.

Parameters: FPGA Once, Always or Never.

DL Mode Setting	Description
Always	Unforced download will be accepted and saved in memory.
FPGA Once	An unforced download will be accepted, followed by a reboot of the transcoder, and the DL Mode will change to Never.
Never	Unforced downloads will not be accepted.

Note: Forced downloads (initiated by the uplink) are always accepted and always result in a reboot of the transcoder. ***Service interruption will occur!***

DL FPGA

Description Sets the FPFA download mode.

Parameters: Enable or Disable.

DL Status, Type, Bank

Description Indicates the DL Mode status, type and bank (i.e., type of code).

Parameters: DL Status - Idle, Running, Timeout. Idle indicates the transcoder is waiting for a download. Running indicates the transcoder is processing a download. Timeout indicates the transcoder didn't complete the download.

Type - rearpanel is only supported at present.

Bank - the type of code, either Application or FPGA.

Limit Version

Description Indicates the current FPGA version number.

Parameters: Read-only alphanumeric value.

CDT#

Description: Indicates the total number of expected CDTs, the number received, the number rejected and the download command.

Parameters: This is the number of tables expected to be received during the current download operation.

Recv

Description: This is the number of CDTs received since the last completed or aborted download, or power-cycle.

Parameters: Read-only numeric value.

Reject

Description: This is the rejected table count. Tables are rejected whenever validation fails due to things like CRC failure or incorrect code or transcoder type.

Parameters: Read-only numeric value.

Command

Description: Indicates the download command.

Parameters: Restart, Abort or None. Abort stops a download that is currently being received. Restart restarts a previously aborted download. Note that the download does not resume from where it was aborted, but restarts from the beginning. None means no action is to be performed.

Date Format, Time Format

Description: Sets the Date and Time formats and the GMT offset. Time information is normally broadcast as part of the transmitted digital signal. It is usually the broadcasters local time relative to GMT (Greenwich Mean Time).

Parameters: Date - The following formats are supported: YYYY_MM_DD, DD_MM_YYY, MM_DD_YYYY, MM_DD, INVALID.

Time - The following formats are supported: 24Hr, 24Hr SuspendZero the (leading zero is dropped from the time), 12Hr, 12Hr SuspendZero (the leading zero is dropped from the time).

GMT Off - Time is displayed using a time zone instead of the true local time. If the current broadcast time is not your local time, you must change this time setting in the range from -12.0 to +12.0 hours in 0.5 hour increments.

D9858 Menu

Description: Sets whether to display the onscreen banner message after booting up the transcoder.

Parameters: Enable or Disable. The default is Disable.

Reset Login Table

Description: Sets whether to reset the login table to the factory set defaults.

Parameters: Abort or Continue.

Abort cancels the reset operation.

Continue resets all the values in the login table to their defaults (i.e., factory set values).

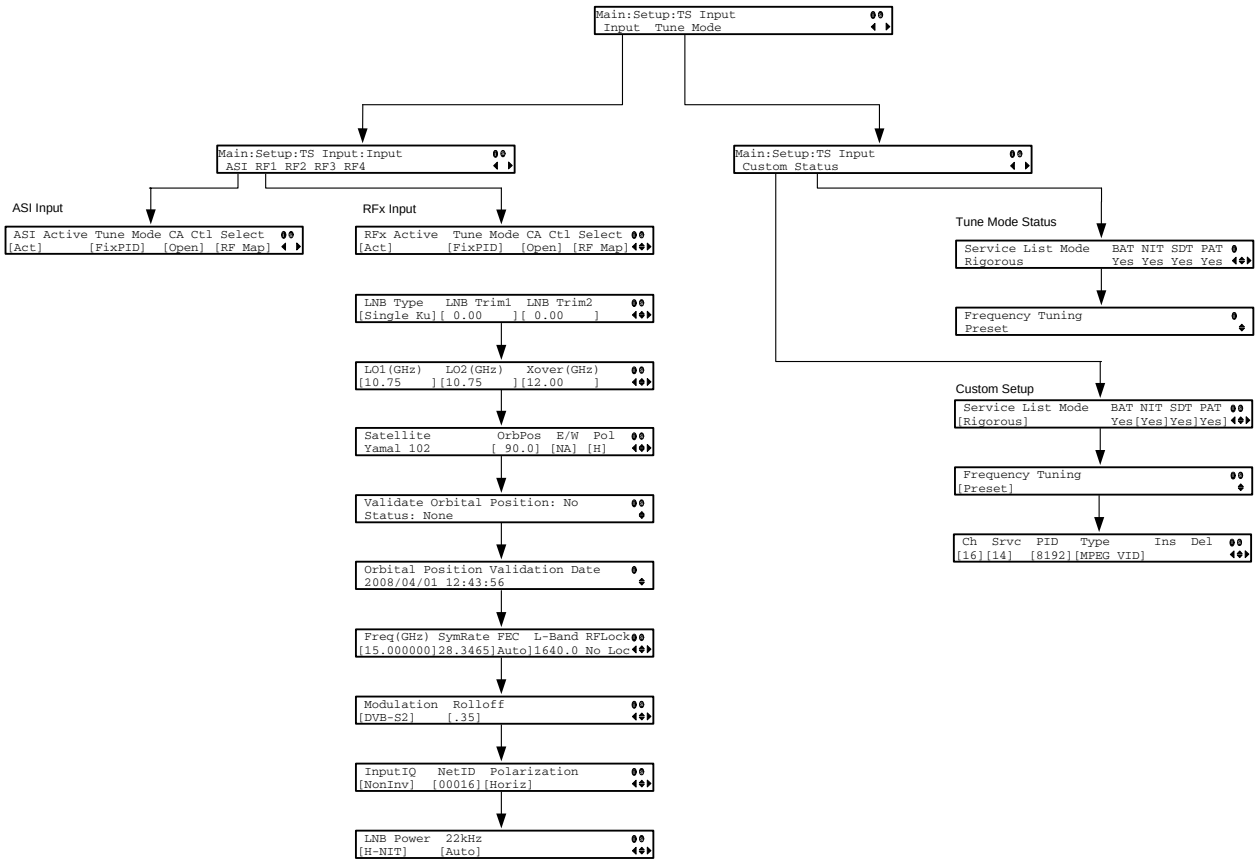
Setup Menu: TS Input

Structure

To view the TS (Transport Stream) Input menu from the Main menu, press the RIGHT arrow key once and then the SELECT key to reach the Setup menu. Then press the RIGHT arrow key once and the SELECT key to view the TS Input menu.

For instructions on how to select and store settings, see **About the Front Panel**, page 4-2.

The TS Input menu has the following structure:



INPUT

ASI

ASI Active

Description: Sets the input to be active or inactive.

Parameters: ACT or No.

Tune Mode

Description: Sets the mode used to build channel lists from allowed service lists.

Parameters: Auto, Basic, Fixed Pid or Custom. The default is Basic.

CA Ctl

Description: Sets the type of CA (Conditional Access) to determine which programs can be viewed via the transcoder.

Parameters: STD (standard) for PowerVu signal or Open conditional access for free-to-air (i.e., in-the-clear signals).

Select

Description: This sets the parameters the transcoder uses for signal switching.

Parameters: RF Map or Preset. RF Map uses the orbital positioning settings to find and lock onto a signal, while it can be ignored for Preset.

RF1, RF2, RF3, RF4

RF1 Active (RF2, RF3, RF4)

Description: Sets the input to be active or inactive.
Note: Setting a new input to be Active will deactivate the currently Active input.

Parameters: ACT or No.

Tune Mode

Description: Sets the mode used to build channel lists from allowed service lists.

Parameters: Auto, Basic, Fixed Pid or Custom. The default is Basic.

CA Ctl

Description: Sets the type of CA (Conditional Access) to will determine which programs can be viewed via the transcoder.

Parameters: STD (standard) for PowerVu signal or Open conditional access for free-to-air (i.e., in-the-clear signals).

Select

Description: This sets the parameters the transcoder uses for signal switching.

Parameters: RF Map or Preset. RF Map uses the orbital positioning settings to find and lock onto a signal, while it can be ignored for Preset.

LO1

Description: This is the Local Oscillator frequency #1. This option sets the satellite antenna LNB local oscillator #1 frequency.

Parameters: 0.0 to 15.0 GHz. Must be lower than the value for LO2.

LO2

Description: This is the Local Oscillator frequency #2. It sets the satellite antenna LNB local oscillator #2 frequency. This option is only used in dual-band LNB applications.

Parameters: 0.0 to 15.0 GHz. Must be higher than the value for LO1. In single-band LNB applications, set this value to 0.0.

XOver

Description: This is the crossover frequency, which is an internal threshold frequency used for selecting the LO1 or LO2 frequency, depending on the current Downlink frequency settings. This option is only used in dual-band LNB applications.

Parameters: 0.0 to 15.0 GHz. In single-band LNB applications, set this value to 0.0.

Satellite

Description: This is the name of the satellite currently selected. Choose the satellite you want to use to receive the signal from the list of satellites available. When you select a satellite, the orbital position (OrbPos) is displayed. This is important for automatic switching from one RF input to another in the event of loss of the signal, allowing the transcoder to acquire an alternate signal.

Parameters: When the satellite is not listed, enter the known orbital position (OrbPos) of the satellite you want to use to receive the signal.

OrbPos

Description: This is the location in orbit of the satellite currently being used. The satellite position (in degrees) in combination with the direction (either **E** (East) or **W** (West)) denotes the satellite position the dish connected to the current RF Input should point. This is used when the satellite is not available in the look-up menu list.

Parameters: For manual configuration, simply enter the location of the satellite using the numerical keypad. The transcoder will not recognize the satellite name and identify it as Unknown. This setting is required to resolve any ambiguity between RF inputs during automatic disaster recovery.

Parameters: Degrees.

E/W

Description: Denotes the satellite position the dish connected to the current RF Input should point. This is used when the satellite is not available in the look-up menu list.

Parameters: E, W or NA.

Pol

Description: Marks the polarity of the signal connected to this RF input.

Parameters: H (horizontal), Vert (vertical), A (Auto). Auto is only applicable for This setting is only applicable when LNB Power is set to H-NIT or V-NIT.

Validate Orbital Position

Description: This option allows you to configure and validate the RF inputs to match those expected by the network. The transcoder will check to see if all the frequencies in the Network Information Table (NIT) can be tuned to.

Parameters: Yes or No.

Orbital Position Validation Date

Description: This displays the last date that the 'Validate Orbital Position' operation was performed.

Parameters: N/A.

Freq

Description: This is the current Downlink operating frequency used by the transcoder for tuning the received digital signal.

Parameters: 0.0 to 15.0 GHz.

SymRate

Description: This is the symbol rate. The symbol rate must match that of transmitted signal.

Parameters: 1.0 to 45.0 Ms/s.

FEC

Description: This is the Frequency Error Correction rate. The FEC must match the FEC of the transmitted signal.

Parameters: 1/2, 2/3, 3/4, 5/6, 7/8 or Auto.

L-Band

Description: This is the L-Band operating frequency used by the transcoder. This value is determined by the values set in the Freq and LO options.

Parameters: 950 to 2150 MHz.

RF Lock

Description: Indicate whether the transcoder is locked to the received signal.

Parameters: Lock or No Loc.

Modulation

Description: Sets the modulation type and for the received signal.

Parameters: DVB-S or DVB-S2.

Rolloff

Description: Sets the rolloff factor of the incoming signal.

Parameters: .20, .25, .35. Use .20 or .35 when DVB-S modulation is used, and either of the three when DVB-S2 is used. Use a small number to reject or filter carriers close to the same frequency.

InputIQ

Description: This is the Input signal inversion setting, which allows the operator to track and select inverted and non-inverted digital signals.

Parameters: When set to Auto, received digital signals are tracked and inverted for correct selection, as required. When set to Inv (inverted), the received digital signal is always inverted. Conversely, when set to NonInv (non-inverted), the received digital signal is never inverted. Normally set to Auto, Inv and NonInv are typically used to automatically reject or filter out unwanted signals.

NetID

Description: This is the Network ID of the uplink signal the transcoder is to receive when using this preset. The transcoder's Network ID must match the Network ID associated with the transmitted signal.

Parameters: 1 to 65535. The default value is 1.

LNB Power

Description: This setting determines if power is provided via the RF1 Input to an external LNB connection.

Parameters: Off, 13V, 18V, V-NIT or H-NIT. When LNB Power is set to V-NIT or H- NIT, the signal polarization is automatically read from the NIT.

Note: Power will not be applied to the LNB when Power is set to Off.

22kHz

Description: This applicable for dual-band LNB applications. It sets whether or not 22 kHz tone is available on RF1.

Parameters: On, Off or Crossover (if downlink frequency is greater than the crossover frequency).

Setup Menu: TS Input: Tune Mode: Custom

TUNE MODE

CUSTOM

Services List Mode

This menu is where you set up your fixed PID properties (when Tune Mode is Fixed PID). Select the channel to set up and then edit it.

Description: All of the options on this menu allow you to select which tables to use to obtain tuning and channel lists. The values set on this menu only apply when Tune Mode is set to ***Custom***.

Parameters: Degraded or Rigorous. Rigorous means all the default settings must be present in the received signal. Degraded means only the table parameters present in the received signal will be used to install the transcoder. The default is Rigorous.

The following table shows some possible configurations for the allowed service lists.

Allowed Service Lists	Auto	Basic	Custom	Fixed PID
BAT	N	N	N	N
NIT	Y	Y	N	N
SDT	Y	N	N	N
PAT	Y	N	Y	N
Frequency Tuning	NIT	NIT	Preset	Preset

Frequency Tuning

Description: Sets whether the transcoder is to be tuned to the received signal using the NIT or a Preset.

Parameters: NIT or Preset.

Ch

Description: This is the channel number.

Parameters: 1 to 16. Use the up and down arrow keys to select the channel to edit/view. Any changes made will be applied to the displayed channel only.

Srvc

Description: This is the service number.

Parameters: 1 to 14. Use the up and down arrow keys to select the service to edit/view. Any changes made will be applied to the displayed channel only.

Setup Menu: TS Input: Tune Mode: Custom

PID

Description: This is one of the PID numbers currently assigned to this service.

Parameters: 0000 to 8192. While editing, this is the PID number to insert (Ins) or add, edit or delete (Del).

Type

Description: This is the type of PID (aud1, data, etc.) being set up.

Note: The PCR PID must be the first one set up.

Ins

Description: Select this option to add a PID to a channel.

Del

Description: Select this option to Delete the currently displayed PID.

STATUS

Services List Mode

Description: Indicates which tables are used to obtain tuning and channel lists. This values on this menu only apply when Tune Mode is set to ***Custom***.

Parameters: Degraded or Rigorous. Rigorous means all the default settings must be present in the received signal. Degraded means only the table parameters present in the received signal will be used to install the transcoder. The default is Rigorous Install.

The following table shows some possible configurations for the allowed service lists.

Allowed Service Lists	Auto	Basic	Custom	Fixed PID
BAT	N	N	N	N
NIT	Y	Y	N	N
SDT	Y	N	N	N
PAT	Y	N	Y	N
Frequency Tuning	NIT	NIT	Preset	Preset

Frequency Tuning

Description: Indicates whether the transcoder is tuned to the received signal using the NIT or a Preset.

Parameters: NIT or Preset.

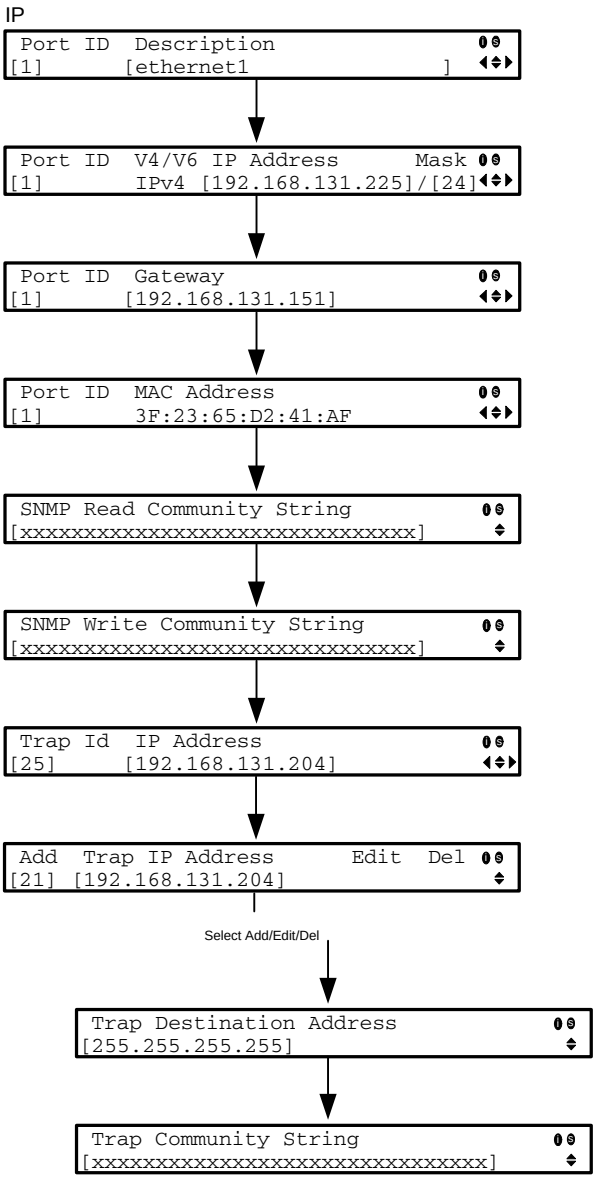
Setup Menu: IP

Structure

To view the IP menu from the Main menu, press the RIGHT arrow key once and the then the SELECT key to reach the Setup menu. Then press the RIGHT arrow key twice and the SELECT key to view the IP menu.

The IP menu allows you to set the parameters for communicating with other equipment via the Ethernet DATA and MANAGEMENT ports for MPEGoIP applications and upgrading application software.

For instructions on how to select and store settings, see **About the Front Panel**, page 4-2.



IP

Port ID

Description: Displays the ID for the Ethernet port.

Parameters: 1 to 3. The default is 1.

Description

Description: Sets the description or name for the Ethernet port.

Parameters: Up to 20 alphanumeric characters in length.

V4/V6

Description: Displays the TCP IP communication protocol version supported on the Ethernet port.

Parameters: This value is not editable. Only V4 is currently supported.

IP Address

Description: Sets the IP Address for its participation in a Network environment.

Parameters: Up to 12 digits in length.

Mask

Description: Sets the Subnet Mask for its participation in a Network environment.

Parameters: Up to 2 digits in length.

Gateway

Description: Sets the Network Gateway Address on the Network, used to expose the transcoder to a WAN.

Parameters: The IP Address/Mask and Gateway Address should be changed together, i.e., as a group. The following table shows the most commonly used Subnet mask values to enter for a chosen IP address mask, which will depend on the size of your network.

Mask	Subnet Mask
8	255.0.0.0
16	255.255.0.0
24	255.255.255.0

MAC Address

Description: Displays the MAC address of the transcoder. It is set at the factory and is a read-only value.

Parameters: N/A.

SNMP Read

Description: The SNMP Community Read and Write fields are used when communicating with a device within an SNMP environment. These commands allow you to set the password to read and write data to a device to display diagnostics traps/alarms. The options are public (default) and or a custom string.

Parameters: Use the default community string called public or enter a custom community string. To set a custom community string, enter an alphanumeric character string up to 31-characters in length identifying the password for the device. Note that the community string is case-sensitive.

SNMP Write

Description The SNMP Community Read and Write fields are used when communicating with a device within an SNMP environment. These commands allow you to set the password to read and write data to a device to display diagnostics traps/alarms. The options are public (default) and or a custom string.

Parameters:Use the default community string called public or a custom community string. To set a custom community string, enter an alphanumeric character string up to 31-characters in length identifying the password for the device. **Note:** The community string is case-sensitive.

Add

Description: Up to 10 entries can be assigned to the Trap Destination and Community string fields.

Trap IP Address

Description: This sets the destination for SNMP trap messages for events (i.e., fault messages).

Parameters: Up to 12 digits, e.g., 155.128.100.200.

Edit, Del

Description: You can choose to Edit or Delete entries.

Parameters:

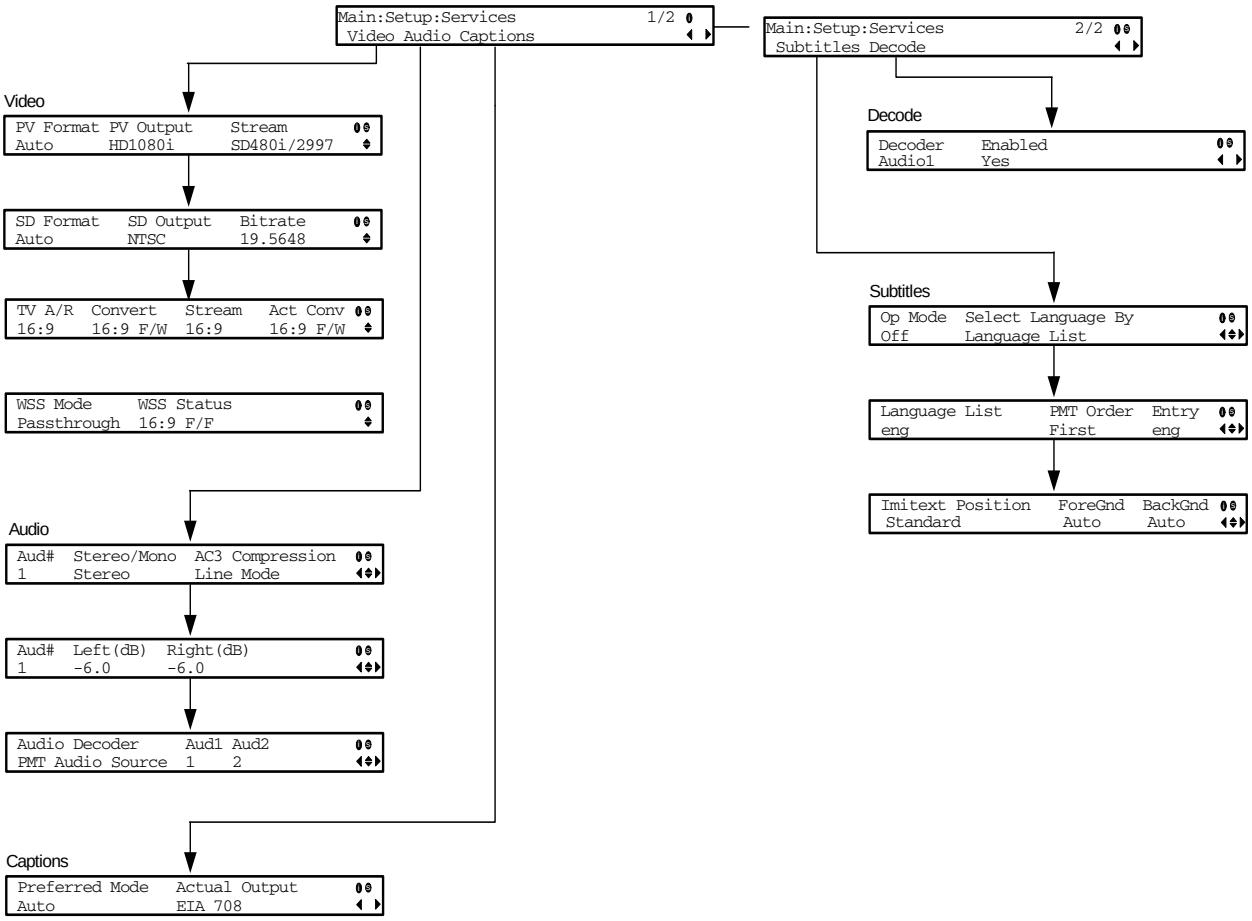
Setup Menu: Services

Structure

To view the Services menu from the Main menu, press the RIGHT arrow key once and then the SELECT key to reach the Setup menu. Then press the RIGHT arrow key three times and the SELECT key to view the Services menu.

The Services menu allows you to setup all the operating parameters associated with audio, video, captions and VBI services. This affects the decode channel (PE1) only and not the transcode channel.

Each parameter is described below. The menu has the following structure:



VIDEO

PV Format

Description: Selects the output video format.

Parameters: Fixed at SD.

Stream

Description: This is the format of the incoming stream. It is determined by the the SD Format setting and the actual format of the incoming stream. This value is read-only.

SD Format

Description: Selects the video format for the output when the input video is SD format.

Parameters: Auto, NTSC, PAL-N (AR), PAL-M or PAL-B/G/I/D. Use NTSC for 525-line systems and PAL-B/G/I/D for 625-line systems.

SD Output

Description: Indicates the SD Output video signal format.

Parameters: NTSC, PAL-N (AR), PAL-M or PAL-B/G/I/D.

Bitrate

Description: Indicates the video output bit rate.

Parameters: 1.0 to 15.0 Mbps.

TV A/R

Description: This is the aspect ratio of your TV.

Parameters: 4:3 or 16:9 (wide aspect ratio). The default is 4:3. Set it to the corresponding value.

Convert

Description: This is the conversion that the transcoder will perform on the incoming signal for the picture to be displayed correctly (i.e., to correspond to the aspect ratio of your TV) on your TV, based on your selection.

Parameters: Auto, None, 16:9 F/W (full width), 4:3 F/H (full height), 14:9, 4:3 P/B (pillar box), 4:3 L/B (letter box) or Auto AFD (Auto setting using Active Format Descriptor). The default is set to Auto.

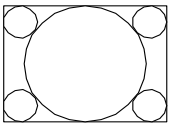
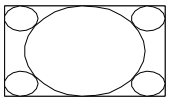
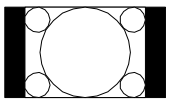
Stream

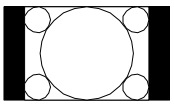
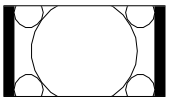
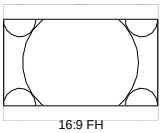
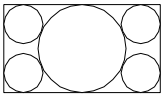
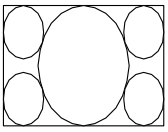
Description: This indicates the aspect ratio of the incoming signal. This is read-only.

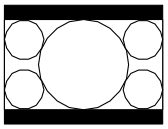
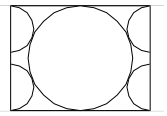
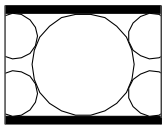
Act Conv

Description: This is the type of (aspect ratio) conversion the transcoder will perform based on what you have selected. This is read-only.

Refer to the following table for the conversions performed by the transcoder based on your selection, and the effect on the picture displayed by the transcoder in each case (without Auto AFD).

Stream	TV A/R	Conversion	Act Conv	Description	Image
4:3	4:3	None	None	Normal Picture	 4:3
4:3	4:3	Auto	None	No conversion	
4:3	4:3	4:3 L/B	None	Conversion is not possible. Normal picture.	
4:3	4:3	4:3 F/H	None	Conversion is not possible. Normal picture.	
4:3	4:3	4:3 P/B	None	Conversion is not possible. Normal picture.	
4:3	4:3	14:9	None	Conversion is not possible. Normal picture.	
4:3	4:3	16:9 F/W	None	Conversion is not possible. Normal picture.	
4:3	16:9	None	None	Picture is short & fat.	 4:3 Stretch
4:3	16:9	Auto	4:3 P/B	Uses 4:3 P/B.	 4:3 PB
4:3	16:9	4:3 L/B	None	Conversion is not possible. Picture appears short and fat.	
4:3	16:9	4:3 F/H	None	Conversion is not possible. Picture appears short and fat.	

Stream	TV A/R	Conversion	Act Conv	Description	Image
4:3	16:9	4:3 P/B	4:3 P/B	4:3 picture is centered in a pillar-style box.	 4:3 PB
4:3	16:9	14:9	14:9	Compromises some up-sampling. Some black bars and cropping are visible.	 14:9
4:3	16:9	16:9 F/W	16:9 F/W	Vertically up-samples the centre of the 4:3 picture and crops the top and bottom of the screen.	 16:9 FH
16:9	16:9	None	None	Normal	 16:9
16:9	16:9	Auto	None	No conversion. Normal picture.	
16:9	16:9	4:3 L/B	None	Conversion is not possible. Normal picture.	
16:9	16:9	4:3 F/H	None	Conversion is not possible. Normal picture.	
16:9	16:9	4:3 P/B	None	Conversion is not possible. Normal picture.	
16:9	16:9	14:9	None	Conversion is not possible. Normal picture.	
16:9	16:9	16:9 F/W	None	Conversion is not possible. Normal picture.	
16:9	4:3	None	None	Picture appears tall and thin.	 16:9 Compressed

Stream	TV A/R	Conversion	Act Conv	Description	Image
16:9	4:3	4:3 L/B	4:3 L/B	Vertically down-samples the picture and applies black bars at the top & bottom of the screen.	 4:3 LB
16:9	4:3	4:3 F/H	4:3 Crop	Horizontally up-samples the centre portion of the picture to fill the 720.	 4:3 Crop
16:9	4:3	4:3 P/B	None	Conversion is not possible. Picture appears tall and thin.	
16:9	4:3	14:9	14:9	Compromises some up-sampling. Some black bars and some cropping are visible.	 14:9
16:9	4:3	16:9 F/W	None	Conversion is not possible. Picture appears tall and thin.	

Note: Active Format Descriptor (AFD) - normally it is necessary to set both the TV Aspect Ratio and Conversion to correctly display the video program on the TV system. The Auto AFD option enables the transcoder output to automatically match the display format of the video program to the TV system based on specific (uplink) program information carried in the transport stream. In this case, the transcoder performs the conversion based on the TV Aspect Ratio setting combined with the program-specific uplink information to provide the "best fit" for display of the program material on the TV. This feature is primarily used in 16:9 and 14:9 (wide screen) applications.

WSS Mode (for future use)

WSS Status (for future use)

PV Output

Description: Indicates the output video format. This value is read-only.

Parameters: SD, HD720p or HD1080i.

AUDIO

Aud#

Description: This is the audio output number to which all settings on the two audio menus will apply.

Parameters: Aud1 or Aud2. When you change this option on one of the Audio Menus, it changes on the other as well. The two audio (Aud#) menus allow you to configure the two balanced audio outputs on the rear panel (Audio 1 and Audio 2), known in the transcoder as Aud1 and Aud2, respectively.

Stereo/Mono

Description: This setting configures how audio received on the audio input is handled.

Parameters: Stereo (Left and Right are passed directly through to the Left and Right), R-MONO (Right is passed to both the Left and Right), L-MONO (Left is passed to both the Left and Right), Mixed (Left is passed to both the Left and Right, and Right is passed to both the Left and Right).

AC3 Compression

Description: This is only applicable if the received signal is Dolby Digital (AC-3). This specifies the AC-3 Compression range of the received audio.

Parameters: Line Mode, Custom 1, Custom 0 or RF Mode. RF Mode is recommended for analog cable modulators.

Left(dB)

Description: This is the volume adjustment for the Left audio channel.

Parameters: -6.0 dB to +6.0 dB. Any value can be entered with the numeric keypad (in the appropriate range), but the UP and DOWN arrows will make increments/decrements at 0.5 dB steps.

Right(dB)

Description: This is the volume adjustment for the Right audio channel.

Parameters: -6.0 dB to +6.0 dB. Any value can be entered with the numeric keypad (in the appropriate range), but the UP and DOWN arrows will make increments/decrements at 0.5 dB steps.

PMT Source

Description: Selects the PMT source for the audio channel.

Parameters: None, AUDI, AUD2, AUD3 or AUD4.

CAPTIONS

Preferred Mode

Description: This is the mode of closed-captioning to use, there are multiple in the stream.

Parameters: Auto, SA Custom, EIA 708, DVS 053, Type 3, DVS 053 Type 4 SA, DVS 053 Type 4 ATSC, Reserved or DVS 157. The default is Auto.

Note: SA Custom is not supported when telecine video coding is enabled.

Actual Output

Description: This is the actual caption mode used. This is read-only.

Parameters: Auto, SA Custom, EIA 708, DVS 053, Type 3, DVS 053 Type 4 SA, DVS 053 Type 4 ATSC, Reserved or DVS 157.

Parameters: Standard and Extended. Standard displays subtitles on screen in the same position as output from other PowerVu receivers (e.g., Model D9834, D9835, etc). Extended positions subtitles on screen according to the Imitext (extended) specification.

SUBTITLES

This menu allows you to configure the type of subtitling (i.e., DVB or Imitext) displayed by the transcoder, and how the transcoder displays subtitling on the TV.

Op Mode

Description: This determines the mode to use to display the program subtitles.

Parameters: Off, On, DVB, and Imitext. The following table describes each of the available options.

Op Mode Selection	Description
Off	No subtitles are displayed.
On	Functions as an "Auto" setting. DVB subtitles are displayed when only DVB subtitles are transmitted on the channel, and likewise, Imitext subtitles are displayed when only Imitext subtitles are transmitted on the channel. When both DVB and Imitext subtitles are available on the same channel, only DVB subtitles will be displayed.
DVB	Displays only DVB titles. For example, if DVB is selected, but both DVB and Imitext titles are being transmitted on the same channel, only DVB subtitles will be displayed.
Imitext	Displays only Imitext subtitles. For example, if Imitext is selected, but both DVB and Imitext titles are being transmitted on the same channel, only Imitext subtitles will be displayed.

Select Language By

Description: This is used to select the language type to display the subtitles.

Parameters: Language List, Language Entry, and PMT Order. The default setting is Language List. Language Entry and Language PMT Order are more applicable for advanced applications. The following table describes each of the available options and how to set them.

Select Language By Option	Description
Language List	Each subtitling PID can contain multiple languages. Use this setting to select the language from the Language List by toggling through the available selections. If Language List is selected, PMT Order and Entry fields are not used.
Language Entry	Use this setting with Entry to directly enter the language code when the language you want is not in the list. In this case enter the three-character code provided by your uplink service provider under Entry using the numeric keypad (e.g., eng for English).
PMT Order	Use this setting to select one of up to eight languages as assigned in the PMT for the tuned channel on the receiver. Toggle through the PMT Order to select the correct language within the order (i.e., First to Eighth), available from your uplink service provider.

Language List

Description: Select the language from the Language List by toggling through the available selections. If Language List is selected, PMT Order and Entry fields are not used.

PMT Order

Description: Select the correct language within the order (i.e., First to Eighth), available from your uplink service provider.

Parameters: First to Eighth.

Entry

Description: Use Language Entry with this setting to directly enter the language code when the language you want is not in the list.

Parameters: Enter the three-character code provided by your uplink service provider under Entry using the numeric keypad (e.g., eng for English).

Imitext Position

Description: This is used to set the position of on-screen subtitle text.

ForeGnd

Description: This is used to set the colour of Imitext subtitles only.

Parameters: Auto, Yellow and White. Auto displays text in the colour transmitted by the subtitling equipment. Yellow and White override the colour set by the uplink, and display text in the selected colour.

BackGnd

Description: This is used to set the background on which Imitext subtitles are displayed.

Parameters: Auto, Shadow, Opaque, Semi and None. The following table identifies the affect each setting has on the displayed subtitle text.

BackGnd Option	Description
Auto	Follows (i.e., same as) the uplink subtitling equipment setting.
Shadow	Applies an outline to the right side of each text character. No background box is applied to subtitles, i.e., text is visible directly on top of video.
Opaque	Applies a black box to each text character.
Semi	Applies a semi-transparent box to subtitle text.
None	No shadow or outline is applied to subtitle text.

DECODE

Decoder

Description: This is the transcoder that any change to the enabled setting will affect.

Parameters: Video or, Audio1 to Audio4.

Enabled

Description: When viewing, this is the state of the currently displayed transcoder (Select the Decoder option and use the UP/DOWN arrow keys to scroll through them). When selected, this option allows you to change the state of the currently displayed transcoder.

Parameters: Yes or No.

Setup Menu: Outputs

Structure

To view the Outputs menus from the Main menu, press the RIGHT arrow key once and then the SELECT key to reach the Setup menu. Then press the RIGHT arrow key four times and the SELECT key to view the Outputs menu.

The Outputs menu allows you to set up the rear panel control relays for alarms, the transport stream outputs, Digital Program Mapping (DPM) and transcoding.

For instructions on how to select and store settings, see **About the Front Panel**, page 4-2.

The Outputs menu has the following structure:

TS OUT

The Cueing submenus are not used in this release.

ASI

Name

Description: This is the name assigned to the transport output for ease of reference.

Parameters: 20-character string.

Rate Control

Description: This is the DPM output rate control (in Mbps) when using an RF input source.

Parameters: Auto or User. The table below describes the affect each of the settings has on the output bit rate.

Rate Control	Description
Auto	The output rate follows that set by the uplink. The output rate will be the same as the input rate (including all null packets). This means the output bit rate is determined automatically based on the input source symbol rate and FEC value.
User	The output rate is specified as the Output Rate parameter. It is determined by the user setting regardless of the input source.

User Rate

Description: This parameter controls the output rate. It is only used if Rate Control is set to User. This setting is used when the signal source is RF or ASI. Note that output data may be lost when the user-selected bit rate is set to a value that is less than the actual signal bit rate. This allows you to set the output bit rate to a value expected by equipment connected to the ASI output.

Parameters: 0 to 213 Mbps.

Output Mode

Description: This selects the DPM output mode.

Parameters: No Output, Passthrough, Service Channels Only, MAP Passthrough, MAP Svc Chans Only, Full DPM Control or Transcoding. These settings are described in the table below.

Output Mode	Description
No Output	No ASI or MPEGoIP output will be generated.
Passthrough	The output will be identical to the input. The output channel will not be modified. PE/PID remapping options, PSI regeneration and User Rate are not supported in this mode.
Service Channels Only	Only service channels will be output.
MAP Passthrough	The output will be identical to the input, except that it will be generated using the DPM and PID mapping settings.
MAP Svc Chans Only	Only service channels will be output according to the DPM and PID mapping settings.
Full DPM Control	The output will be generated according to the DPM settings on the DPM: ASI or MOIP1 menus. This is a manual control setting.
Transcoding	The output will be generated using the DPM default settings, except that the DPM action (Act) will be set to Xcode and the Descramble Mode will be set to Descrambled.

Descramble Mode

Description: This parameter selects whether the transcoder should scramble the output even if it is authorized to receive the channel.

Parameters: Scrambled or Descrambled. Default is Descrambled.

Descramble Mode	Description
Scrambled	Scrambles the output channel even if the PE is authorized and can descramble the channel.
Descrambled	Descrambles the output channel, and passes in-the-clear channels.

Regenerate

Description: This selects whether to regenerate the PSI tables.

Parameters: Always or As Needed.

Insert Null Packet

Description: This parameter selects whether to insert null packets in the output stream.

Parameters: Yes, No. It is recommended that this field always be set to Yes to ensure the best compatibility with equipment that the D9858 transcoder is to be connected.

MOIP1

Name

Description: This is the name assigned to the transport output for ease of reference.

Parameters: 20-character string.

Rate Control

Description: This is the DPM output rate control (in Mbps) when using an RF input source.

Parameters: Auto, User. The table below describes the affect each of the settings has on the output bit rate.

Rate Control	Description
Auto	The output rate follows that set by the uplink. The output rate will be the same as the input rate (including all null packets). This means the output bit rate is determined automatically based on the input source symbol rate and FEC value.
User	The output rate is specified as the Output Rate parameter. It is determined by the user setting regardless of the input source.

User Rate

Description: This parameter controls the output rate. It is only used if Rate Control is set to User. This setting is used when the signal source is RF or ASI. Note that output data may be lost when the user-selected bit rate is set to a value that is less than the actual signal bit rate. This allows you to set the output bit rate to a value expected by equipment connected to the ASI output.

Parameters: 0 to 999.99999 Mbps.

Output Mode

Description: This selects the DPM output mode.

Parameters: No Output, Passthrough, Service Channels Only, MAP Passthrough, MAP Svc Chans Only or Full DPM Control. These settings are described in the table below.

Output Mode	Description
No Output	No ASI or MPEGoIP output will be generated.
Passthrough	The output will be identical to the input. The output channel will not be modified. PE/PID remapping options, PSI regeneration and User Rate are not supported in this mode.
Service Channels Only	Only service channels will be output.
MAP Passthrough	The output will be identical to the input, except that it will be generated using the DPM and PID mapping settings.
MAP Svc Chans Only	Only service channels will be output according to the DPM and PID mapping settings.
Full DPM Control	The output will be generated according to the DPM settings on the DPM: ASI or MOIP1 menus. This is a manual control setting.
Transcoding	The output will be generated using the DPM default settings, except that the DPM action (Act) will be set to Xcode and the Descramble Mode will be set to Descrambled.

Note: If you change any of the DPM parameters while in MAP Passthough, MAP Svc Chans Only or Transcoding Output Modes, the Output Mode will change to Full DPM Control. Full DPM Control is primarily used for manual control, but uses the last set of DPM settings prior to changing the mode.

Note: When changing any DPM parameter in either MAP Passthough, MAP Svc Chans or Transcoding Output Modes, you will prompted with a "Resync All" message. If you choose **No**, the transcoder will use the current settings in which case, if the PMT content has been changed, the input to output PID mapping will be lost; however, if you choose **Yes**, the transcoder will use the new PMT content.

Descramble Mode

Description: This parameter selects whether the transcoder should scramble the output even if it is authorized to receive the channel.

Parameters: Scrambled or Descrambled. Default is Descrambled.

Descramble Mode	Description
Scrambled	Scrambles the output channel even if the PE is authorized and can descramble the channel. This setting is not valid for transcoded programs.
Descrambled	Descrambles the output channel, and passes in-the-clear channels.

Regenerate

Description: This selects whether to regenerate the PSI tables.

Parameters: Always or As Needed (only if the content has changed).

Insert Null Packet

Description: This parameter selects whether to insert null packets in the output stream.

Parameters: Yes or No.

Instance Name

Description: This is the DPM output instance name.

Parameters: Up to 31 characters.

MPEGoIP

Description: Selects the transport protocol to be used for the output stream.

Parameters: RTP or UDP.

SAP

Description: This selects whether to send Session Announcement Protocol messages.

Parameters: No or Yes.

SAP ID

Description: This is the SAP identifier (ID)/string.

Parameters: Up to 49 characters.

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DestAddr

Description: Enter the MPEGoIP destination IP address.

Parameters: 0 to 255 for each of the four fields in the format ###.###.###.###.

UDPPort

Description: This selects the destination UDP port number.

Parameters: 1 to 65535.

SrcPort

Description: This selects the source UDP port number.

Parameters: 1 to 65535.

TS/IP

Description: This selects the maximum number of transport packets per IP packet.

Parameters: 1 to 7.

Min IP/s

Description: This selects the minimum number of transport packets per IP packet.

Parameters: 1 to 7.

PCR@IP Start

Description: This selects whether to always transmit a new Ethernet Packet when a new Program Clock Reference (PCR) arrives.

Parameters: Yes, No.

SAP

Description: This selects whether to use the configured SAP string as the channel name.

Parameters: Yes or No.

MGMT Port Mode

Description: This selects the Interface 1 MPEGoIP mode.

Parameters: No Output, IGMP or Always Output.

Intf1 Mode Intf2 Mode	Description
No Output	Disables the MPEGoIP interface.
IGMP	Only outputs data when requested via IGMP.
Always Output	Always outputs data on the port.

DATA Port Mode

Description: This selects the Interface 2 MPEGoIP mode.

Parameters: No Output, IGMP or Always Output.

Intf1 Mode Intf2 Mode	Description
No Output	Disables the MPEGoIP interface.
IGMP	Only outputs data when requested via IGMP.
Always Output	Always outputs data on the port.

SAP Multicast Address

Description: This is the SAP destination IP address.

Parameters: 0 to 255 for each of the four fields in the format ###.###.###.###.

PCR Addition

Description: This selects whether to add a PCR to the output stream.

Parameters: Yes or No.

Setup Menu: Outputs: TS Out: DPM

Structure

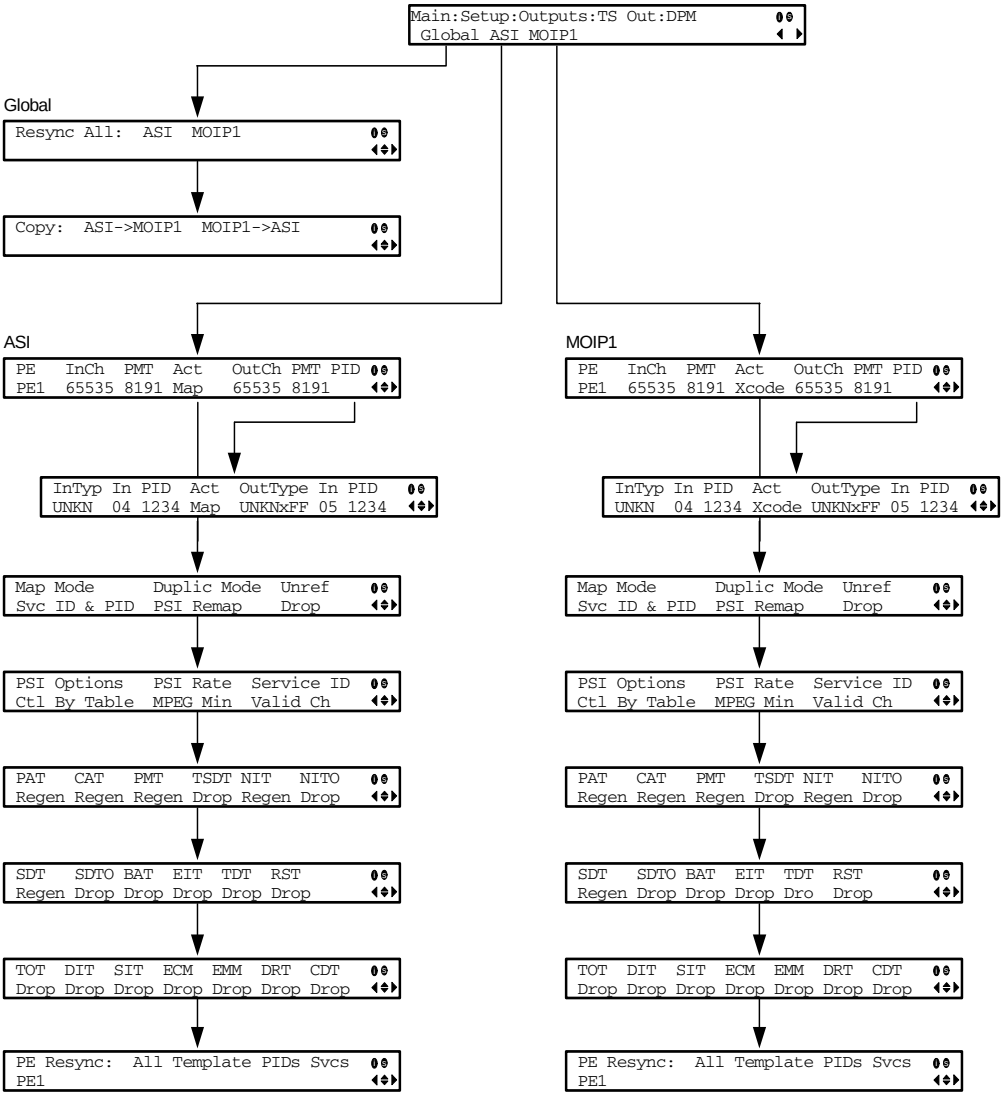
To view the DPM menu from the TS Out menu, press the RIGHT arrow key twice. The DPM menu provides access to functionality associated with Global and ASI and MOIP1 outputs.

The DPM menu allows you to groom functionality on a program basis where individual service PID modifications are provided on a limited scale.

Use the digital program mapping features to:

- configure the transport output bit rate
- configure the output mode for a program entry
- configure the service and PID output settings in a program entry

The DPM menu has the following structure:


Main:Setup:Outputs:TS Out:DPM
Global ASI MOIP1
Global
Resync All: ASI MOIP1
Copy: ASI->MOIP1 MOIP1->ASI
ASI
PE InCh PMT Act OutCh PMT PID
PE1 65535 8191 Map 65535 8191
InTyp In PID Act OutType In PID
UNKN 04 1234 Map UNKNxFF 05 1234
Map Mode Duplic Mode Unref
Svc ID & PID PSI Remap Drop
PSI Options PSI Rate Service ID
Ctl By Table MPEG Min Valid Ch
PAT CAT PMT TSDT NIT NITO
Regen Regen Regen Drop Regen Drop
SDT SDTO BAT EIT TDT RST
Regen Drop Drop Drop Drop Drop
TOT DIT SIT ECM EMM DRT CDT
Drop Drop Drop Drop Drop Drop Drop
PE Resync: All Template PIDs Svcs
PE1
MOIP1
PE InCh PMT Act OutCh PMT PID
PE1 65535 8191 Xcode 65535 8191
InTyp In PID Act OutType In PID
UNKN 04 1234 Xcode UNKNxFF 05 1234
Map Mode Duplic Mode Unref
Svc ID & PID PSI Remap Drop
PSI Options PSI Rate Service ID
Ctl By Table MPEG Min Valid Ch
PAT CAT PMT TSDT NIT NITO
Regen Regen Regen Drop Regen Drop
SDT SDTO BAT EIT TDT RST
Regen Drop Drop Drop Dro Drop
TOT DIT SIT ECM EMM DRT CDT
Drop Drop Drop Drop Drop Drop Drop
PE Resync: All Template PIDs Svcs
PE1

Global

Resync All:

Description: This resynchronizes all DPM output with the PMT data for all program entries.

Parameters: ASI or MOIP1.

Copy:

Description: This copies all DPM data from either the ASI output to the MOIPI output (MPEG over IP) or from the MOIPI output to the ASI output depending on your selection.

Parameters: ASI->MOIPI or MOIPI->ASI.

ASI/MOIP1

PE

Description: This selects the DPM Program Entry to view/modify.

Parameters: 1. Default is 1.

InCh

Description: Displays the input channel of the current PE.

Parameters: 1 to 65535.

PMT

Description: This is the input PMT. This value is only to map to the output PMT if the PE Action is set to MAP.

Parameters: 1 to 8192.

Act

Description: Selects the DPM action for the PMT associated with the PE.

Parameters: Pass, Drop, Map or Xcode. The default is Pass.

Id

Description: Selects the transcoder when **Act** is set to **XCode**.

Parameters: 1 or 2.

OutCh

Description: This selects the DPM output channel you want to map to the input channel (InCh). This value is only used if the PE Action is set to MAP.

Parameters: 1 to 65535.

PMT

Description: This is the DPM output PMT/service ID, which is the same as the input PMT if it is present. the This value is only used if the PE Action is set to Map.

Parameters: 1 to 65535.

PID (Press Select to view this level)

InType

Description: This indicates the input program stream category/service type. This value is read-only.

In

Description: This indicates the stream instance. This value is read-only.

Parameters: 1 to 64.

PID

Description: This indicates the input program PID. This value is read-only. It is only used if the PID Action is set to Map.

Parameters: 1 to 8190.

Act

Description: This selects the DPM action for the PID associated with the PE.

Parameters: Pass, Drop or Map.

OutType

Description: This selects the output program stream category/service type. This value is only used if the PID Action is set to MAP.

Parameters: UNKN, CDT, LSDT, DATA, TTX, MPE, DPI, VBI, SUBT, AUD, VID, PCR or INVL.

In

Description: This selects the output stream instance.

Parameters: 1 to 64.

PID

Description: This selects the output program PID.

Parameters: 1 to 8192.

Map Mode

Description: This parameter selects the DPM map mode.

Parameters: Svc ID or Svc ID & PID.

Map Mode	Description
Svc ID	The elementary PIDs are not changed. Channels are remapped by changing their PSI references. When this mode is selected, PE detailed PID mapping cannot be edited.
Svc ID & PID	Channels and the elementary service PIDs can be mapped.

Duplic Mode

Description: This selects the method of DPM program duplication, which modifies the PSI to duplicate a program and its content. This parameter is only used if Map Mode is set to Svc ID & PID.

Parameters: PSI Remap or Pkt Copy. Pkt Copy is recommended for most applications.

Duplic Mode	Description
PSI Remap	Every input PID can be mapped to one output PID. If PID mapping conflicts exist, DPM will use the Precedence Rule to decide which output PID to use. All PMTs using the input PID will be updated to reference the output PID specified by the PMT that will be output.
Pkt Copy	An input PID can be mapped to multiple output PIDs. The PID will be duplicated as many times as needed (up to a certain hardware limitation).

Unref

Description: This selects the DPM action to use for unreferenced content. Unreferenced content is the remainder of the transport that is not filtered by the program entries.

Parameters: Drop or Pass. Default is Drop.

Output	Unref
ASI	Pass, Drop
MOIP1	Pass, Drop

PSI Options

Description: This option allows the operator to specify which PSI tables to include in the program/output stream.

Parameters: Pass All, Drop All or Control by Table.

PSI Options	Description
Pass All	Transmits the incoming PSI Tables as is; does not modify the content and rate.
Drop All	Does not transmit any PSI Tables.
Control by Table	The operator can enter the Tables menu to select the output mode for each table. The default table selections will be all pass, and only with CDT dropped.

PSI Rate

Description: This selects the DPM regeneration rate. This applies the PowerVu rates (consistent with the uplink).

Parameters: Auto, MPEG Min or SA Std.

PSI Rate	Description
Auto	Matches the generated PSI tables' output rate as the incoming rate.
MPEG Min	Transmits the generated PSI tables on the longest intervals that are allowed by the MPEG standard.
SA Std	Transmits the generated PSI tables based on PowerVu standard intervals.

SPAT, CAT, PMT, TSDT, NIT, NITO,

SDT, SDTO, BAT, EIT, TDT, RST,

TOT, DIT, SIT, ECM, EMM, DRT, CDT

Description: Selects the tables which will be passed, dropped, regenerated, or passed with rate control (PwRC) from the output.

Setting	Mode Options	Description	Default
PAT	Pass, Drop, Regen	Program Allocation Table	Pass
CAT	Pass, Drop, Regen	Conditional Access Table	Pass
PMT	Pass, Drop, Regen	Program Map Table	Pass
TSDT	Pass, Drop	Transport Section Description Table	Pass
NIT	Pass, Drop, Regen, PwRC	Network Information Table	Pass
NITO	Pass, Drop, PwRC	Network Information Table - Other	Pass
SDT	Pass, Drop, Regen, PwRC	Service Description Table	Pass
SDTO	Pass, Drop, PwRC	Service Description Table - Other	Pass
BAT	Pass, Drop, PwRC	Bouquet Allocation Table	Pass
EIT	Pass, Drop	Event Information Table	Pass
TDT	Pass, Drop	Time-Date Table	Pass
RST	Pass, Drop	Running Status Table	Pass
TOT	Pass, Drop	Time Offset Table	Pass
DIT	Pass, Drop	Discontinuity Information Table	Pass
SIT	Pass, Drop	Selection Information Table	Pass
ECM	Pass, Drop	Encrypted Control Message	Pass

Setting	Mode Options	Description	Default
EMM	Pass, Drop	Entitlement Management Message	Pass
DRT	Pass, Drop	Disaster Recovery Table	Pass
CDT	Pass, Drop	Code Download Table	Pass

Service ID

Description: This parameter specifies whether the transcoder should always generate PSI tables for the mapped PE even if the selected input channel is not available (e.g., Zombie channel), or for only valid service channels/IDs.

Parameters: Valid Ch or All Ch.

Svc ID	Description
Valid Ch	Only transmits the PSI tables for the mapped program if the program exists in the input stream.
All Ch	Transmits the PSI tables for the mapped program even if the program does not exist in the input stream. All Ch is only valid if the PAT, NIT, SDT and PMT are set to Regenerate.

PE Resync: All, Template, PIDs, Svcs

Description: Each PE output can be synchronized to its input according to one of four output modes.

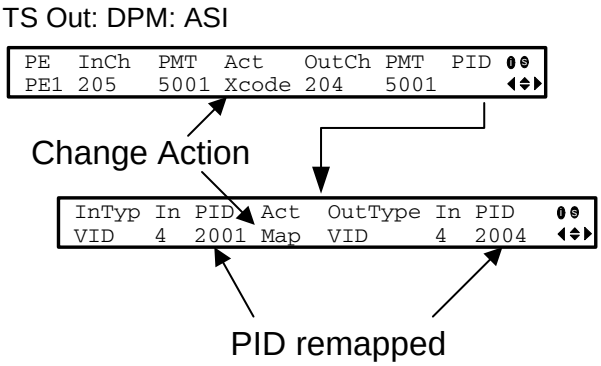
Parameters: Services only (Svcs), PIDS only (PIDs), using a Template or All (Services and PIDS).

Setting Up Digital Program Mapping (DPM)

To set up DPM:

1. Verify that you are receiving a valid signal and that you have set up the channels that you want to pass, drop or map.
2. Go to TS Out: Outputs: DPM and set **Resync** to **All** to resynchronize the inputs to the outputs of the current PMT according to the service assignments and then the PIDs for the two program entries.

   Note: It is recommended that you use the Resync function to synchronize the programs and not manually modify the output. You should only change the settings if you fully understand your downstream setup.
3. Go to Setup: Outputs: TS Out: ASI and select the PE containing the channel that you want to configure.
4. Set the **ACT** for the selected PMT to either **Pass**, **Drop, Map** or **XCode** depending on the action desired.
5. Use the RIGHT arrow key to move to the right and select PID to display the detailed menu level. Configure the input to output channel mapping. Video and PCR can be output on the same PID or different PIDs. If output on the same PID, they will appear identical to the input. The example below shows the PMT passed but the services PIDs remapped.


TS Out: DPM: ASI
PE InCh PMT Act OutCh PMT PID
PE1 205 5001 Xcode 204 5001
Change Action
InTyp In PID Act OutType In PID
VID 4 2001 Map VID 4 2004
PID remapped

Note: If the parameters cannot be saved, the problem may be that the incorrect Map Mode has been selected. Ensure that Svc ID & PID is selected when remapping PIDs, otherwise a message such as "Bad configuration data" will be displayed and you will need to change the parameters to obtain the correct output.

Similarly, an error message will be displayed if the selected settings result in a PID collision, which indicates that either the selected PID mapping resulted in the selection of a PID which is being used for another service.

6. Go to Setup: Outputs, TS Out: ASI, and set the **Output Mode** to **Full DPM Control**. Also, if necessary set the Descramble Mode according to whether the program is to be Scrambled or Descrambled for downstream monitoring.
7. On the same menu, set the following parameters:

Parameter	Description
Map Mode	Svc ID & PID
Duplic Mode	Pkt Copy
Unref	Drop
PSI Options	Ctl by Table
PSI Rate	Any
Svc ID	Any

8. Set the table parameters as follows:

Parameter	Description
PAT	Regen
CAT	Regen
PMT	Regen
TSDT	Drop
NIT	Regen or Drop
NITO	Drop
SDT	Regen
SDTO	Drop
BAT	Drop
EIT	Drop
TDT	Pass
RST	Pass

Parameter	Description
TOT	Pass
DIT	Pass
SIT	Pass
ECM	Drop
EMM	Drop
DRT	Drop
CDT	Drop

9. Press MENU to exit the menu and save the data. If the changes cannot be saved/made, a message will be displayed indicating "Bad configuration data". In this case, the menu will revert to the previously saved configuration.

   Note: When remapping an input program channel to an output channel, ensure that the PIDs are mapped to different PIDs to avoid PID collisions.

Synchronizing Output Services

To synchronize the output to the input Services Only:

This operation synchronizes the inputs to the outputs according to the service assignments only. This is useful when you already have PID assignments set for the services but want to ensure that the services are mapped correctly.

1. On the TS Out: DPM: ASI/MOIP1 menu, map the output services as desired.
2. Select PE Resync: Svcs. The transcoder will synchronize the PE output according to the available input services only, and ignore the input to output service PID mapping.

To synchronize the output PIDs to the input PIDs only:

This operation synchronizes the inputs to the outputs according to the PID assignments only. This is useful when you have already set up the services that you but want to synchronize to the incoming PIDS.

1. On the TS Out: DPM: ASI/MOIP1 menu, map the output services as desired.
2. Select PE Resync: PIDs. The transcoder will synchronize the PE output according to the input PIDs only, and ignore the service assignment categories/ names.

To synchronize the output to All (Services and PIDs):

This operation synchronizes the inputs to the outputs of the current PMT according to the service assignments and then the PID assignments. This is similar to a sample and hold function.

1. On the TS Out: DPM: ASI/MOIP1 menu, map the output services as desired.
2. Select PE Resync: All. The transcoder will synchronize the PE output according to the services and then the PIDs assigned to each service.

To synchronize the output to a Template:

Using a template allows you to preset the input to output mapping of a PE according to the preset template. This is helpful in preconfiguring any number of PEs for future use.

Note: You can change the stream category in any service box by selecting the service box in the Out column and then scroll through the available categories. You will be prompted to enter the Stream Instance, which is the stream number (e.g., AUD1, AUD2, etc.) before you save the new assignment.

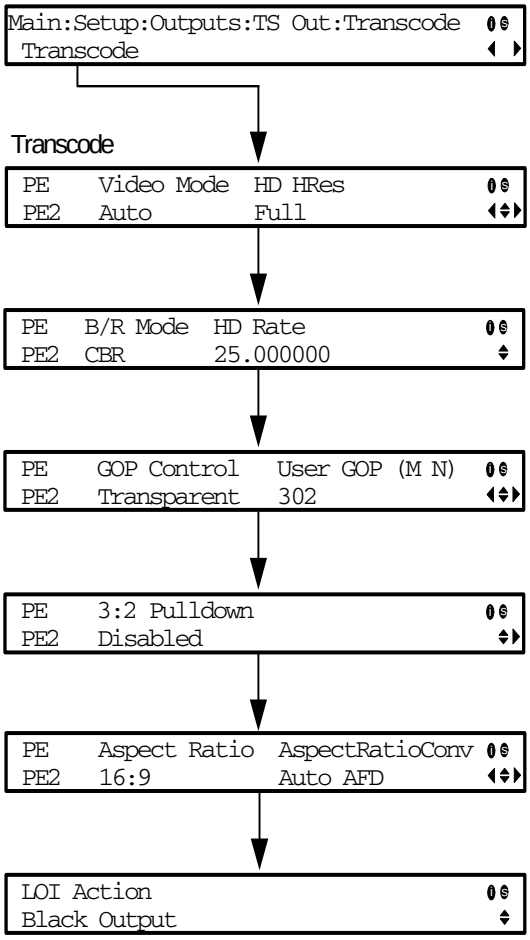
Setup Menu: Outputs: TS Out: Transcode

Structure

To view the Transcode menu from the TS Out menu, press the RIGHT arrow key three times.

The Transcode menu allows you to convert MPEG-4 HD services to MPEG-2 for use in CATV headends. Video and two audio monitoring outputs are available for confidence monitoring of the decrypted incoming MPEG-4 HD program.

The Transcode menu has the following structure:



Transcode

PE (Index)

Description: This selects the transcoder index as referenced by DPM.

Parameters: 1 or 2.

VideoMode

Description: This selects the transcode channel video mode.

Parameters: Auto, SD Output, HD Output, HD720p or HD1080i.

Setting	Description
Auto	Leaves the input video format and resolution unchanged. e.g., SD in - SD out, HD in - HD out.
HD Output	Up-converts from SD to HD1080i when receiving an SD input signal. HD horizontal resolution will follow the HD Res parameter on this menu.

HD Res

Description: This selects the transcode channel HD horizontal output video resolution.

Parameters: Full or 3/4.

Setting	Description	
	Input Resolution	Output Resolution
Full	1080i	1920
3/4	1080i	1440
Full	720p	1280
3/4	720p	960

B/R Mode

Description: This selects the transcode channel output bit rate mode.

Parameters: CBR or VBR.

HD Rate

Description: This sets the transcode channel output bit rate when HD MPEG-4/ AVC to HD MPEG-2 transcoding is selected.

Parameters: 10 to 25 Mb/s in 400 b/s increments.

GOP Control

Description: This selects the Transcode Group of Pictures (GOP) format.

Parameters: User GOP (MN), I Frame Sync or Fixed GOP.

User GOP (M N)

Description: This selects the transcode manual GOP format value. The transactor attempts to reuse information from the encoded bit stream to improve the video quality of the transcoded stream. Amongst others, if the incoming GOP structure is similar to that of an MPEG-2, it will reuse the frame allocations from the incoming stream as long as GOP Control is set to I Frame Sync. If the downstream receiver does not support altering GOP structures, set the GOP Control setting to User GOP (MN). This will also require the setting of the GOP structure which is given as two numbers, where the first is the length of the GOP and the second is the number of B-pictures per sub-GOP.

Parameters: Supported GOP structures - 1 0, 12 2, 15 2, 24 2 or 30 2.

3:2 Pulldown

Description: This enables or disables 3:2 pulldown.

Parameters: Enabled or Disabled.

Aspect Ratio

Description: This selects the SD transcode channel aspect ratio.

Parameters: 4:3 or 16:9 (wide aspect ratio). The default is 4:3. Set it to the corresponding value.

AspectRatioConv

Description: This selects the SD transcode channel aspect ratio conversion. This is the conversion that the transcoder will perform on the output signal for the picture to be displayed correctly (i.e., to correspond to the aspect ratio of your TV) on your TV, based on your selection.

Parameters: Auto, None, 16:9 F/W (full width), 4:3 F/H (full height), 14:9, 4:3 P/B (pillar box), 4:3 L/B (letter box) or Auto AFD (Auto setting using Active Format Descriptor). The default is set to Auto. See **Convert**, page 4-38 for more information.

LOI Action

Description: This selects the transcode Loss Of Input (LOI) Action, which is the action that the transcoder takes when there is a loss of input signal.

Parameters: No Output or Black Output.

Setting Up Transcoding

To set up the transcode channel:

1. Verify that you are receiving a valid signal and that you have set up the channels that you want to transcode.
2. Go to Setup: Outputs: TS Out: ASI, and set the **Output Mode** to **Transcoding**. You will be prompted to **Resync All** for the selected output. This resynchronizes the inputs to outputs for the current PMT according to the service assignments and the PIDs for the PE.
3. Press MENU to exit the menu and save the data. If the changes cannot be saved/made, a message will be displayed indicating "Bad configuration data". In this case, the menu will revert to the previously saved configuration.

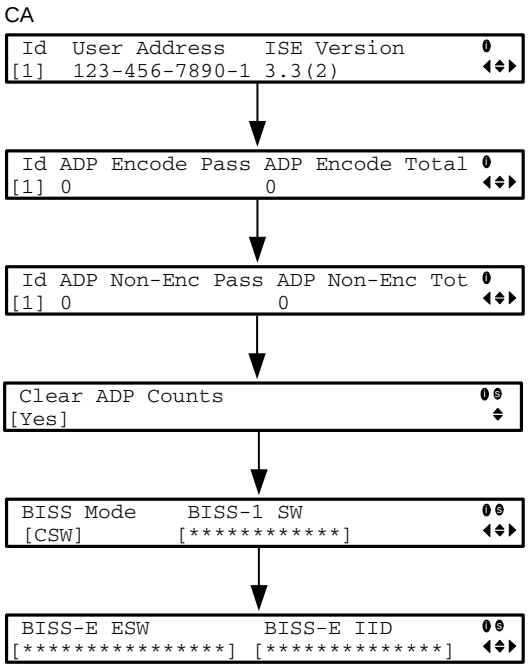
   Note: When remapping an input program channel to an output channel, ensure that the PIDs are mapped to different PIDs to avoid PID collisions.
4. If desired, perform set a program channel for the second transcoder channel, PE2, and repeat step 2. See **Assigning a Program Channel to a Program Entry**, page 4-7 for more information on assigning a program channel to a PE.

Setup Menu: CA

Structure

To view the CA menu from the Main menu, press the RIGHT arrow key once and then the SELECT key to reach the Setup menu. Then press the RIGHT arrow key five times and the SELECT key to view the CA menu.

The CA menu provides information about the ISE, the status of the ADP transmission, and allows you to set the BISS mode and session words available from your service provider. This menu has the following structure:



ID

Description: This is the Inboard Security Element (ISE) number.

Parameters: 1.

User Address

Description: Indicates the ISE User Address.

Parameters: 14 hexadecimal characters.

ISE Version

Description: Indicates the ISE version number.

Parameters: 7 characters.

ADP Enc Pass

Description: Indicates the current Encrypted Addressed Data Packet Count. This count indicates the amount of transmitted ADP information which is being accurately received and processed. Ideally, the ADP Enc Pass and ADP Enc Total numbers should be identical.

ADP Enc Total

Description: Indicates the total number of current Encrypted Addressed Data Packet count. This count indicates the amount of transmitted ADP information being accurately received and processed. Ideally, the ADP Enc Pass and ADP Enc Total numbers should be identical.

ADP Non-Enc Pass

Description: Indicates the current Non-Encrypted Addressed Data Packet count. This count indicates the amount of transmitted ADP information being accurately received and processed. Ideally, the ADP Enc Pass and ADP Enc Total numbers should be identical.

ADP Non- Enc Total

Description: Indicates the current Non-Encrypted Addressed Data Packet Count. These counts indicate the amount of transmitted ADP information which is being accurately received and processed. Ideally, the ADP Non-Enc Pass and ADP Non-Enc Total numbers should be identical.

Clear ADP Counts

Description: To help the operator make accurate analyses of the transcoder's functionality, the ADP Enc Pass, ADP Enc Total, ADP Non-Enc Pass and ADP Non-Enc Total numbers can be cleared by using this feature. These same values are also reset whenever the transcoder is turned on, reset or power-cycled.

Parameters: Yes or No.

BISS Mode

Description: This is used to set the Basic Interoperable Scrambling System (BISS) mode for the transcoder.

Parameters: Mode 1 or Mode E.

BISS-1 SW

Description: This used to set the BISS Mode 1, odd and even session words.

Parameters: You can enter the fixed 12-character Session Word (SW). Once entered it cannot be viewed, only displayed as asterisks (*).

Contact your program provider for the respective session word and/or injected ID.

BISS E ESW, BISS E IID

Description: This used to set the BISS Mode E, odd and even session words.

Parameters: You can enter the 16-character Encrypted Session Word (ESW) and the 14-character Injected ID. Once entered, neither of these values can be viewed, only displayed as asterisks.

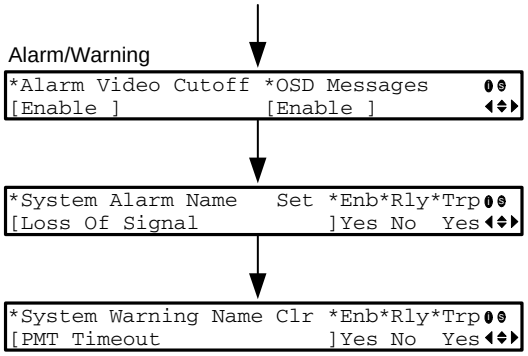
Contact your program provider for the respective session word and/or injected ID.

Setup Menu: Alarm/Warning

Structure

To view the Alarm/Warning menu from the Main menu, press the RIGHT arrow key once and then the SELECT key to reach the Setup menu. Then press the RIGHT arrow key six times and the SELECT key to view the Alarm/Warning menu.

The Alarm/Warning menu allows to you to browse the active alarms and warnings, and set whether the output will be disabled in the event of an alarm. This menu has the following structure:


Alarm/Warning
*Alarm Video Cutoff *OSD Messages
[Enable] [Enable]
*System Alarm Name Set *Enb*Rly*Trp
[Loss Of Signal]Yes No Yes
*System Warning Name Clr *Enb*Rly*Trp
[PMT Timeout]Yes No Yes

Alarm Video Cutoff

Description: Sets whether the video output is cut off if any enabled alarm is active on the transcoder. When video is cut off, there will be no horizontal or vertical synchronization on the output. This is useful for downstream redundancy switching by detecting a loss of video signal.

Parameters: Enable or Disable. The default is Disable.

OSD Message

Description: Sets whether alarms and warnings are to be displayed on the front panel LCD display.

Parameters: Enable or Disable.

System Alarm Name

Description: Displays a list of the alarm/fault messages. You can scroll through the list using the UP and DOWN arrow keys.

Parameters: Enable - Yes or No. When set to Yes, the alarm message will be reported. When set to No, the fault won't be reported and the alarm relays will not be triggered or change state.

Note: Enable must be set to Yes for the Relay and Trap settings to be functional.

Rly - Yes or No. When set to Yes, the rear panel alarm relay will be triggered to enable external equipment connected to the alarm port.
Trp - Yes or No. When set to Yes, the SNMP trap message will be sent to the trap destination; otherwise the fault message will be ignored.

"No*" indicates the trap or relay is enabled, but Enable is set to No, which will prevent relay or trap operation.

System Warning Name

Description: Displays a list of the warning messages. You can scroll through the list using the UP and DOWN arrow keys.

Parameters: Enable - Yes or No. When set to Yes, the warning message will be reported. When set to No, the fault won't be reported.

Note: Enable must be set to Yes for Relay and Trap messages reporting to be functional.

Rly - Yes or No. When set to Yes, the rear panel alarm relay will be triggered to enable external equipment connected to the alarm port.

Trp - Yes or No. When set to Yes, the SNMP trap message will be sent to the trap destination; otherwise the warning message will be ignored.

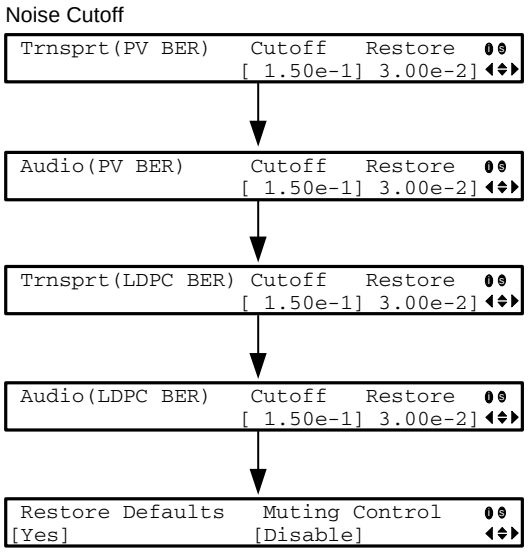
"No" indicates the trap or relay is enabled, but Enable is set to No, which will prevent relay or trap operation.

Setup Menu: Noise Cutoff

Structure

To view the Noise Cutoff menu from the Main menu, press the RIGHT arrow key once and then the SELECT key to reach the Setup menu. Then press the RIGHT arrow key seven times and the SELECT key to view the Noise Cutoffs menu.

The Noise Cutoff menu allows you to set the muting thresholds for both audio and video in the event of a noisy signal. This menu has the following structure:



Trnsprt (PV BER)

Description: This sets how the transcoder reacts when the signal quality is severely degraded when using DVB-S modulation. This allows you to set the transport (BER) values for the transcoder. The transcoder uses these noise values/settings as limits during normal operation to determine whether to mute the transport in the event of a noisy signal, poor signal or no signal condition.

Parameters: Cutoff - This is the upper limit for the transport BER setting. The transport will be muted when the BER is above the Cutoff setting, and un-muted (e.g., restored) when the BER falls below the Restore setting for a preset period of time. The adjustable operating range is from 1.0e-9 (1.0x10-9) to 9.99e-1. The default setting for Transport (PV BER) Cutoff is 1.00e-2.

Restore - This is the lower limit for the transport BER setting. The transport will be muted when the BER is above the Cutoff setting, and un-muted (e.g., restored) when the BER falls below the Restore setting for a preset period of time. The adjustable operating range is from 1.0e-9 (1.0x10-9) to 9.99e-1. The default setting for Transport (PV BER) Restore is 7.50e-3.

Note: Muting Control must be set to Enable for these settings to be active.

Audio (PV BER)

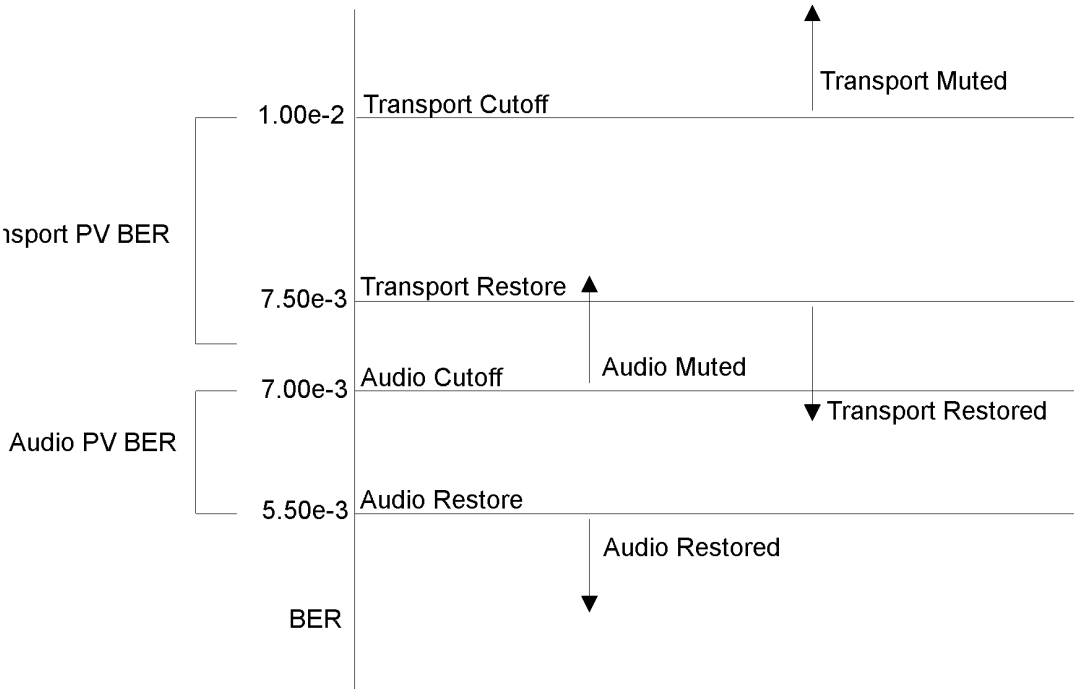
Description: This is used to set the Audio channel Cutoff and Restore Post-Viterbi (PV) Bit Error Rate (BER) values (limits) to mute audio when the signal quality is severely degraded.

Parameters: Cutoff - This is the upper limit for the audio BER setting. Audio will be muted when the BER is above the Cutoff setting, and un-muted (e.g., restored) when the BER falls below the Restore setting for a preset period of time. The adjustable operating range is from 1.0e-9 (1.0x10-9) to 9.99e-1. The default setting for Audio (PV BER) Cutoff is 7.00e-3.

Restore - This is the lower limit for the audio BER setting. Audio will be muted when the BER is above the Cutoff setting, and un-muted (e.g., restored) when the BER falls below the Restore setting for a preset period of time. The adjustable operating range is from 1.0e-9 (1.0x10-9) to 9.99e-1. The default setting for Audio (PV BER) Restore is 5.50e-3.

Note: Muting Control must be set to Enable for these settings to be active.

Audio Default PV BER and Transport Default PV BER Relationship



Trnsprt LDPC (Low Density Parity Check) BER

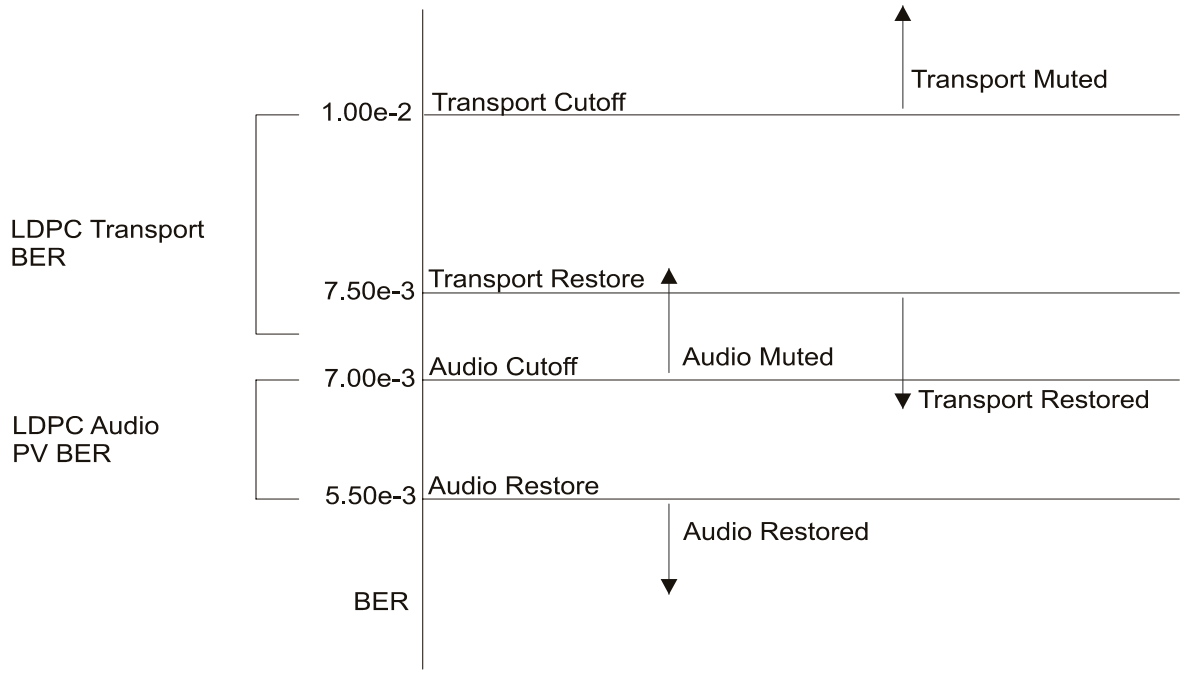
Description: Sets how the transcoder reacts when the signal quality is severely degraded when using DVB-S2 modulation. This allows you to set the transport and audio bit error rate (BER) values for the transcoder. The transcoder uses these noise values/settings as limits during normal operation to determine whether to mute the transport and/or audio in the event of a noisy signal, poor signal or no signal condition.

Parameters: Cutoff - This is the upper limit for the transport BER setting. The transport will be muted when the BER is above the Cutoff setting, and un-muted (e.g., restored) when the BER falls below the Restore setting for a preset period of time. The adjustable operating range is from 1.0e-9 (1.0x10-9) to 9.99e-1. The default setting for Transport (LDPC BER) Cutoff is 1.4.e-2.

Restore - This is the lower limit for the transport BER setting. The transport will be muted when the BER is above the Cutoff setting, and un-muted (e.g., restored) when the BER falls below the Restore setting for a preset period of time. The adjustable operating range is from 1.0e-9 (1.0x10-9) to 9.99e-1. The default setting for Transport (LDPC BER) Restore is 1.30e-2.

Note: Muting Control must be set to Enable for these settings to be active.

Transport Default LDPC BER Relationship



Restore Defaults

Description: This restores the RF options to their factory set (default) values.

Parameters: Yes or No.

Muting Control

Description: This allows you to mute the transport stream and audio in the event of an unstable signal, poor signal or no signal condition.

Parameters: Enable or Disable. The default is Enable.

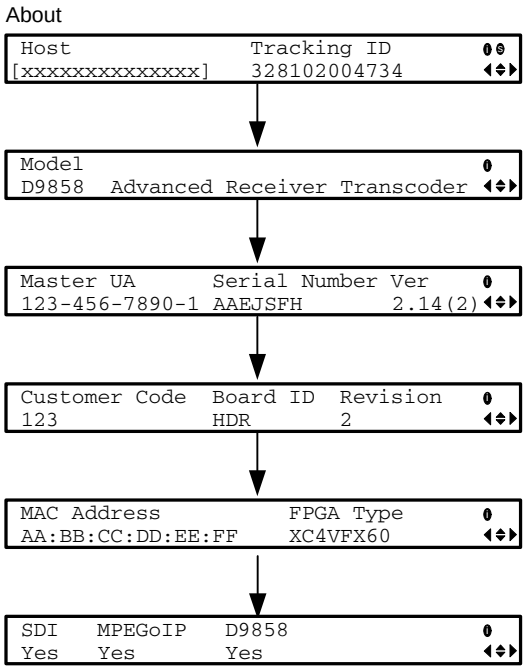
About Menu

Structure

To view the About menu from the Main menu press the RIGHT arrow key three times and then the SELECT key.

The About menu provides basic hardware information that is useful when requesting customer support from Scientific Atlanta.

Each parameter is described below. The About menu has the following structure:



Host

Description: Select this option to change the Host ID.

Tracking ID

Description: This is the unique Tracking ID number that identifies the product version.

Model

Description: Indicates the model number of the transcoder.

Master UA

Description: Indicates the Master User Address (UA), which is required to request program authorization from the uplink.

Serial Number Ver

Description: Indicates the unique serial number of the transcoder.

Customer Code

Description: Indicates the unique Customer Code assigned to an organization by Scientific Atlanta.

Board ID

Description: Indicates the board type.

Revision

Description: Indicates the board revision number.

MAC Address

Description: Indicates the MAC address of the Ethernet port.

FPGA Type

Description: Indicates the FPGA type/number information.

SDI

Description: Indicates whether the transcoder is equipped with an SDI output.

MPEGoIP

Description: Indicates whether the transcoder is equipped with an MPEG over IP output.

D9858

Description: Indicates whether the unit is a D9858 transcoder. If no, the unit is a Model D9854 Advanced Program Receiver.

Parameters: Yes or No.

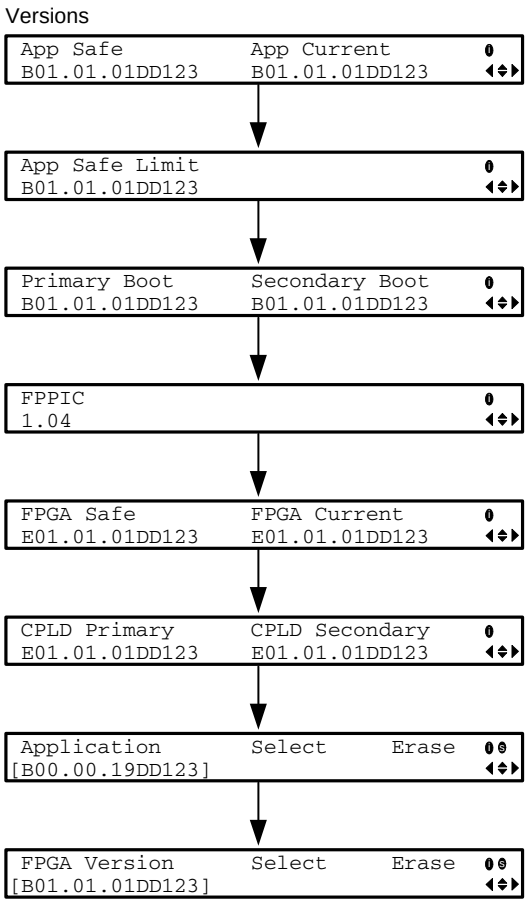
Versions Menu

Structure

To view the Versions menu from the Main menu press the RIGHT arrow key four times and then the SELECT key.

The Versions menu provides basic software version information that is useful when requesting customer support from Scientific Atlanta.

The menu has the following structure:



VERSIONS

App Safe/App Current

Description: Indicates the factory loaded application version number (App Safe) and the currently running loaded application version number (App Current).

App Safe Limit

Description: Indicates the minimum version number that can be used/ downloaded for the factory loaded application.

Primary Boot/Secondary Boot

Description: Indicates the transcoder primary and secondary Boot application version numbers.

FPPIC

Description: Indicates the FP Programmable Interrupt Controller (PIC) version number.

FPGA Safe and FPGA Current

Description: Indicates the current and safe limits for the Field Programmable Gate Array (FPGA) version number.

CPLD Primary/CPLD Secondary

Description: Indicates the primary and secondary Complex Programmable Logic Device (CPLD) version numbers.

Application/Select/Erase

Application	Select this option to choose a different application version number the next time the transcoder is rebooted, or to erase a particular application version.
Select	Select this option to choose the selected Application version for the next reboot. You will be prompted to Abort or Continue.
Erase	Select this option to erase the selected Application version. You will be prompted to Abort to Continue. Select Abort to cancel the operation or choose Continue to complete the operation.

FPGA Version/Select/Erase

FPGA Version	Select this option to choose a different FPGA application version number the next time the transcoder is rebooted, or to erase a particular application version.
Select	Select this option to choose a different FPGA application version number the next time the transcoder is rebooted, or to erase a particular application version. You will be prompted to Abort or Continue.
Erase	Select this option to erase the selected FPGA version. You will be prompted to Abort to Continue. Select Abort to cancel the operation or choose Continue to complete the operation.

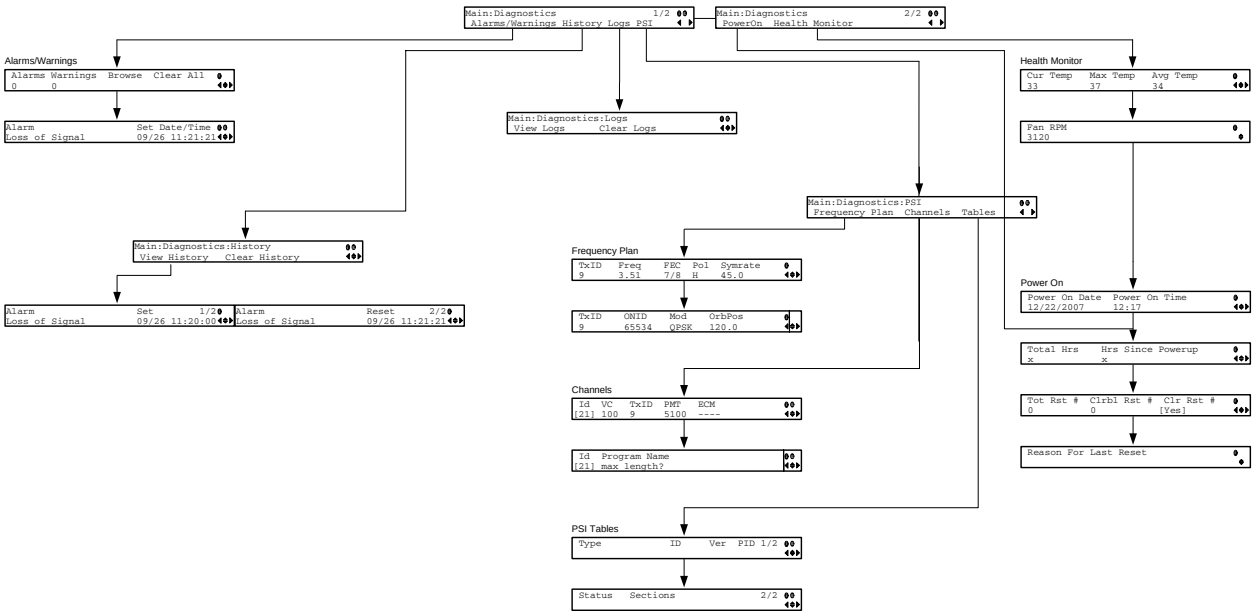
Diagnostics Menu

Structure

To view the Diagnostics menus from the Main menu, press the RIGHT arrow key five times and then the SELECT key.

For instructions on how to select and store settings, see **About the Front Panel**, page 4-2.

The Diagnostics menu has the following structure:



Alarms/Warnings History Menu

Description:	This menu displays the system event messages.
View History:	Select this option to view the system event messages. Press SELECT to view the messages using the UP/DOWN arrow keys.
Clear History	Select this option to clear any existing history information.

Logs

Description:	This menu allows you to view system log messages.
View Logs:	Select this option to view the system log messages. Press SELECT to view the messages using the UP/DOWN arrow keys.
Clear Logs:	Select this option to clear any existing log history information.

Diagnostics Menu: PSI

PSI

Frequency Plan

This is the Frequency Plan sub-menu. You cannot make any changes here, but you can view the available frequency plans stored in the transcoder. The following is a list of the expanded abbreviations:

TxID - Transport ID

Freq - Downlink Frequency (GHz)

FEC - Forward Error Correction Rate

Pol - Polarity

SymRate - Symbol Rate (Msym/s)

ONID - Original Network ID

Modulation - Modulator

OrbPos - Orbital Position (in degrees)

Channels

This is the Virtual Channel sub-menu. You cannot make any changes here, but you can view the available channels and their settings. The following is a list of the expanded abbreviations:

VC - Virtual Channel

TxID - Transport ID

PMT - Program Map Table

ECM - Entitlement Control Message

Tables

This is the Tables received sub-menu. You cannot make any changes here, but you can view the PSI tables received and their settings. The following is a list of the expanded abbreviations:

Type - Table Type (i.e., NIT, PMT, etc.)

ID - MPEG/DVB Table ID

Ver - Table Version number

PID - Program ID

Status - Reception status

Sections - Table section received

Section - PSI tables are received in sections. This indicates the section number received. This information is useful for diagnostics/troubleshooting purposes.

POWER ON

Creation Date and Time

Description: Displays the date and time when the transcoder was manufactured.

Power On Date/Power On Time

Description: Displays the date and time when the transcoder was powered up.

Total Hours/Hrs Since Powerup

Description: Displays the total numbers of hours (Total Hrs) that the transcoder has been operating, and the number of hours since the last power-up (Hrs Since PowerUp).

Tot Rst #/Clrbl Rst #/Clr Rst

Description: Displays the total numbers of times the transcoder has been restarted (Total Rst #), and the number of restarts since the last time the restart count was cleared (Clrbl Rst #).

Clear Rst # Select this option to clear/reset the Clrbl Rst # counter to 0.

Reason For Last Reset

Description: Displays the reason for the last restart, i.e., power cycle or manual reset.

HEALTH MONITOR

Cur Temp/Max Temp/Avg Temp

Description: Displays the current temperature operating temperature (Cur Temp), the maximum operating temperature (Max Temp) that has been reached, and the average operating temperature (Avg Temp).

Parameters : Degrees Celsius.

Fan

Description: Displays the fan speed in RPM for the internal fan.

Chapter 5
Service and Maintenance

Overview

Introduction

This chapter gives information to assist you in upgrading firmware to the D9858 Advanced Receiver Transcoder. It also describes how the status of the D9858 transcoder is communicated via the front panel LEDs.

In This Chapter

This chapter contains the following topics.

Topic	See Page
Section A - Front Panel LEDs	5-2
Introduction	5-2
Messages	5-4
Section B - Power Supply Replacement	5-19
Introduction	5-19

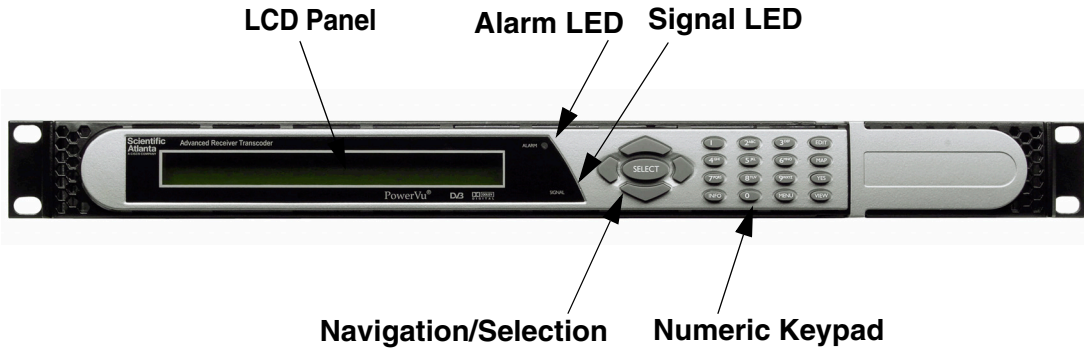
Section A - Front Panel LEDs

Introduction

Overview

To help signal the status of operation or the presence of an alarm, the D9858 Advanced Receiver Transcoder makes use of front panel LEDs.

The photograph below shows the location of the LEDs on the front panel of the D9858 Advanced Receiver Transcoder.



LED Function

The functions of the LEDs are described in the table below.

LED	Signal State/Color	Explanation
ALARM	Red	Solid for five seconds indicates a Warning.
	Red	Flashing indicates an Alarm.

LED	Signal State/Color	Explanation
SIGNAL	Green	Solid indicates all of the following conditions: • all RF inputs are enabled, all inputs are locked to a signal, and are not muted. • all outputs are operating without an error.
	Green	Flashing indicates one of the following conditions: • difficulty with an input or output. • one or more RF inputs, or the ASI input are not synchronized. • one or more outputs are muted by a fault condition. • the receiver is not authorized to receive the program. • no RF signal is present or detected, or it is muted.
	Off	Off indicates all of the following conditions: • no RF input signal is available, enabled or detected, or the input is muted. • no ASI input is present. • no valid inputs are available.

Messages

General

The status of the D9858 Advanced Receiver Transcoder and its immediate surroundings is reported to the front panel in the form of messages and alarms. You can enable or disable messages in the Alarm/Warning settings.

D9858 Advanced Receiver Transcoder Message List

The following table shows an alphabetical list of the available messages and their default alarm status. The Set Messages and Clear Messages are displayed in the Warning History when the messages are set or cleared respectively.

Note: Only alarm conditions can be used to trigger rear panel relays to control external alarm equipment. Warnings are not associated with relay operation.

Alarms

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Signal Status	Set	ASI Signal - No Content	Cause: Loss of RF external to IRD. Remedy: Check RF settings.	Loss of Signal	Minor
		Signal is lost			
	Clear	Signal is locked			

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
PE n: ISE Not Auth	Set	Channel is not authorized	Cause: The channel is unauthorized for the current program. Remedy: Contact your service provider (uplink) to determine whether you are authorized to receive the current program.	Program unauthorized because the tier bits do not match.	Minor
		Channel requires an authorization key		Program is unauthorized because the unit does not have an authorization key.	
		Channel is blacked out		Program is unauthorized because at a minimum, it needs to match one blackout code.	
		Channel uses an unknown CA system	Cause: Conditional access not supported. Remedy: Contact your service provider (uplink) to determine whether you are authorized to receive the current program at this time.	Non-SA conditional access system.	
		Channel authorization refused		There is mismatch in the Conditional access.	
		Channel requires an IRD with CA support		Conditional access is not supported.	
		Channel requires the PE to have an ISE	Cause: Hardware issue. Remedy: Clear alarms, reset unit, and notify customer service if problem persists.	Hardware fault.	
	Clear	Fault Reset			
		Channel is authorized.			

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
PE n: Loss of Input	Set	Loss of input detected	Cause: Loss of input. Remedy: Ensure input has a valid stream.	Loss of input.	Minor
	Clear	Fault reset			
Digital Program Mapping	Set	PID Collision	Cause: Uplink settings may have changed since setting up the unit. Please check your DPM settings. Remedy: Correct DPM settings. Check the uplink to find appropriate system settings.	Two source service PIDs are being mapped to the same output PID. This will cause data corruption in the stream.	Minor
		Program Collision		Two source channel numbers are being mapped/passed to the same channel number in the output.	
		Mode-i PMT out of range		PMT PID to be used for Mode-i is outside of valid MPEG PID range.	
	Clear	Digital Program Mapping - OK			
Shutdown		Shutdown Event			Major
SMI Setup	Set	Phase lock error on SMI SDRAM	Cause: Hardware Issue. Remedy: Clear alarms, reset unit, and notify customer service if problem persists.	SDRAM on SMI bus not working.	Major
		SMI SDRAM exhaust test failed			
	Clear	SMI SDRAM setup successful		SDRAM on SMI Bus OK.	
		SMI SDRAM exhaust test passed			

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
LMI setup	Set	LMI SDRAM exhaust test failed	Cause: Hardware issue. Remedy: Clear alarms, reset unit, and notify customer service if problem persists.	DDR RAM on LMI bus not working.	Major
	Clear	LMI Video SDRAM exhaust test passed		DDR RAM on LMI bus OK.	
PARAM STORAGE	Set	DB NVS flushing ignored	Cause: Hardware issue. Remedy: Clear alarms, reset unit, and notify customer service if problem persists.	Non-volatile storage system failed to update fully.	Major
		RAM flush to NVS failed			
		DB Factory Reset failed		Non-volatile storage system failed during factory reset.	
	Clear	DB flushing completed		Successful NVS update.	
		DB Factory Reset completed		Successful action.	
Flash STORAGE	Set	RECORD: init failed	Cause: Hardware issue. Remedy: Clear alarms, reset unit, and notify customer service if problem persists.	Non-volatile storage system corrupted. Possible loss of configuration.	Major
		RECORD MANAGER: Record contents check error, erasing all		NVS Corruption, and loss of configuration data	
		RECORD: sector setup check error, erasing sector		NVS Corruption, and loss of sector data	
	Clear	RECORD: init done			
LNB PS		LNB PS			Minor

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Signal Quality	Set	Audio Muted due to RF noise	Cause: RF Signal quality is poor due to interference or signal level issues. Remedy: Check RF settings, re-aim dish, and add signal amplifier.	Signal is locked but BER is beyond Audio muting threshold.	Minor
		Unstable RF Signal		Signal lock status is toggling frequently.	
		Poor Quality RF Signal		Signal is locked but BER is beyond muting threshold.	
	Clear	Signal Quality Fault Cleared			
		Audio Unmuted			
Transport Procesing	Set	PTI lockup	Cause: Possible software issue Remedy: Clear alarms, reset unit, and notify customer service if problem persists	Programmable transport input module stopped processing any data packet.	Minor
	Clear	PTI running			
Temperature Alarm	Set	Temperature over Alarm threshold	Cause: Room temperature too high, or air flow is blocked. Remedy: Check openings on front and rear panels for blockage. Lower room temperature or improve air flow to device.	Temperature is above safe operating range.	Major
	Clear	Clear Temperature Alarm			
Fan	Set	Fan Failure Alarm	Cause: Hardware issue. Remedy: Unit should be returned to customer service as soon as possible.	Fan failure	Major
		Fan Alarm		Fan RPM out of normal operating range.	
	Clear	Clear Fans Alarm			

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
FPGA Temperature Alarm	Set	Temperature over Alarm threshold	Cause: Room temperature too high, or air flow is blocked. Remedy: Check openings on front and rear panels for blockage. Lower room temperature or improve air flow to device.	FPGA temperature is above safe operating range.	Major
	Clear	Clear Temperature Alarm			
Output Muted	Set	ASI Overflow. Output Muted. Reduce content.	Cause: Uplink settings may have changed since setting up the unit. Variable Bit Rate/Statmuxed streams may be in use. Remedy: Increase output rate, drop unreferenced content in DPM Options, drop programs not needed for downstream devices. Contact your service provider (uplink) to verify expected bit rate settings.	Current transport rate exceeds configured rate for ASI output. Output has been muted to protect downstream devices.	Minor
		MPEGoIP Overflow. Output Muted. Reduce content.		Current transport rate exceeds configured rate for MPEG over IP output. Output has been muted to protect downstream devices.	
	Clear	ASI Output Restored			
		MPEGoIP Output Restored			
ASI Out Status		ASI Out Status			Minor
MPoIP Status		MPoIP Status			Minor

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
BOOT HOST	Set	KB not accessible	Cause: Hardware issue Remedy: Clear alarms, reset unit, and notify customer service if problem persists.	KB is not detected by Boot code.	Major
		LCD not connected		LCD is not detected by Boot code.	
		Host FLASH Not Found		Flash memory not detected.	
		Host EMI SDRAM Test Failed		RAM Failure - memory testing failed.	
		Host BOOT Invalid		Boot SW cannot be read from memory correctly.	
		Host FPGA Invalid		FPGA Image cannot be read from memory correctly.	
		Host APP Invalid		Application SW cannot be read from memory correctly.	
	Clear	BOOT passed			

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
BOOT SECONDARY	Set	KB not accessible	Cause: Hardware issue. Remedy: Clear alarms, reset unit, and notify customer service if problem persists.	KB is not detected by Boot code.	Major
		LCD not connected		LCD is not detected by Boot code.	
		Host FLASH Not Found		Flash memory not detected.	
		Host EMI SDRAM Test Failed		RAM Failure - memory testing failed.	
		Host BOOT Invalid		Boot SW cannot be read from memory correctly.	
		Host FPGA Invalid		FPGA Image cannot be read from memory correctly.	
		Host APP Invalid		Application SW cannot be read from memory correctly.	
	Clear	BOOT passed			

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Decoder Processor Start	Set	Secondary DB Startup failed	Cause: Hardware issue. Remedy: Clear alarms, reset unit, and notify customer service if problem persists.	Transfer of operational parameters to secondary processor failed.	Major
		Secondary App Transfer Fail		Transfer of Application SW to second processor was not correctly completed.	
		Secondary No Response		Secondary processor not responding.	
		Secondary Synchronization Failure		Communication with secondary processor failing.	
	Clear	Secondary Boot passed		OK	
		Secondary Not Booted (developer override)		Specific message used during development. It may indicate that a front panel key is stuck.	
FPGA download	Set	FPGA Init failed to go high	Cause: Hardware issue Remedy: Clear alarms, reset unit, and notify customer service if problem persists.	FPGA setup failure	Major
		FPGA Init and Done failed to go low			
		FPGA Init went LOW (CRC error)			
		FPGA Done failed to go high			
		Invalid FPGA data			
		Invalid PCB version			
	Clear	FPGA loaded successfully			
ASI/DHEI Out Status		ASI/DHEI Out Status			Minor

Warnings

The following table shows an alphabetical list of the available messages and their default warning status.

Warning	Message Type	Message	Cause/Remedy	Description
Transport Overflow	Set	ASI Output Overflow	Cause: Uplink settings may have changed since setting up the unit. The Variable Bit Rate/Statmuxed streams may be in use. Remedy: Increase output rate, drop unreferenced content in DPM Options, and drop the programs that are not needed for downstream devices. Contact your service provider (uplink) to verify expected bitrate settings.	The output rate is higher than level set by the user.
		MPEGoIP Output Overflow		
	Clear	ASI Output Overflow Cleared		
		MPEGoIP Output Overflow Cleared		

Warning	Message Type	Message	Cause/Remedy	Description
Transport ErrorSet	Set	Continuity Count Error	Cause: Possible uplink or signal issue. Remedy: Clear warnings, reset unit, and notify customer service if problem persists.	Transport packet continuity count jumped. Possible packet loss.
		Buffer Overflow		The transport stream is faster than the maximum buffer or the decode engines are having difficulty handling the data sent to them.
		Transport Error Indicator		Transport packets are marked as "errored" upstream of the decoder.
		Transport Rate Error: FPGA Overflow	Cause: Uplink settings may have changed since setting up the unit. Variable Bit Rate/Statmuxed streams may be in use. Remedy: Increase output rate, drop unreferenced content in DPM Options, drop programs not needed for downstream devices. Contact uplink to verify expected bitrate settings.	The output rate is higher than level set by the user.
	Clear	Continuity Count Error ClearedClear		Trap expires after 30 seconds.
		Buffer Overflow Cleared		
		Transport Error Indicator Cleared		
		Transport Rate Error: FPGA Overflow Cleared		
Video Format Mismatch		Video Format Mismatch		
Temperature Warning	Set	Temperature over Warning threshold	Cause: Room temperature too high, or air flow is blocked. Remedy: Check openings on front and rear panels for blockage. Lower the room temperature or improve air flow to device.	Temperature is above normal operating range.
	Clear	Clear Temperature Warning		

Warning	Message Type	Message	Cause/Remedy	Description
FPGATemperature Warning	Set	Temperature over Warning threshold	Cause: Room temperature too high, or air flow is blocked. Remedy: Check openings on front and rear panels for blockage. Lower room temperature or improve air flow to device.	FPGA temperature is above normal operating range.
	Clear	Clear Temperature Warning		
TDT timeout	Set	tdt timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If problem persists determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Time Date Table was never received.
		tdt is lost		No longer receiving Time Date.
	Clear	tdt fault cleared		
SDT timeout	Set	sdt # timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If problem persists determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Service Description Table was never received.
		sdt # is lost		No longer receiving Service Description.
	Clear	sdt fault cleared		
PMT timeout	Set	pmt # timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If problem persists determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Program Mapping Table was never received.
		pmt # is lost		No longer receiving Program Mapping Table.
	Clear	pmt fault cleared		

Warning	Message Type	Message	Cause/Remedy	Description
PAT timeout	Set	pat # timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If problem persists determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Program Association Table was never received.
		pat # is lost		No longer receiving Program Association Table.
	Clear	pat fault cleared		
NIT timeout	Set	nit timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If problem persists determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Network Information Table was never received.
		nit is lost		No longer receiving Network Information Table.
	Clear	nit fault cleared		
CAT timeout	Set	cat timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If problem persists determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Conditional Access Table was never received.
		cat is lost		No longer receiving Conditional Access Table.
	Clear	cat fault cleared		
DRT timeout	Set	drt # timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If problem persists determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Disaster Recovery Table was never received.
		drt # is lost		No longer receiving Disaster Recovery Table.
	Clear	drt fault cleared		

Warning	Message Type	Message	Cause/Remedy	Description
Memory Usage	Set	Excessive (stack/ partition) memory usage	Cause: Possible software issue. Remedy: Clear warnings, reset unit, and notify customer service if problem persists.	SW exceeding allowable memory usage.
	Clear	Normal (stack/ partition) memory usage		
Memory Usage	Set	Excessive (stack/ partition) memory usage	Cause: Possible software issue. Remedy: Clear warnings, reset unit, and notify customer service if problem persists.	SW exceeding allowable memory usage.
	Clear	Normal (stack/ partition) memory usage		
FPGA Code Version	Set	FPGA code version mismatch: format(Rel.Maj.Min. Nan), Required=#.#.#.#, Running=#.#.#.#	Cause: Possible HW Issue. Remedy: Clear warnings, reset unit, and notify customer service if problem persists.	FPGA binary identity does not match FPGA registers.
	Clear	FPGA code ver OK		
Ethernet PHY #		Created fault but not used.	Cause: No ethernet cable connected, faulty cabling, multiple devices sharing MAC address on same IP segment, or possible HW issue. Remedy: Check cabling, check MAC addresses, clear warnings, reset unit, and notify customer service if problem persists.	Ethernet MAC PHY device is attempting to reconnect to external devices.
FW: Resource Use HOST	Set	Memory or List Near Full	Cause: Possible software issue. Remedy: Clear warnings, reset unit, and notify customer service if problem persists.	SW exceeding allowable usage of internal constructs.
	Clear	Normal Level		

Warning	Message Type	Message	Cause/Remedy	Description
FW: Resource Use SECOND	Set	Memory or List Near Full	Cause: Possible software issue. Remedy: Clear warnings, reset unit, and notify customer service if problem persists.	SW exceeding allowable usage of internal constructs.
	Clear	Normal Level		

Section B - Power Supply Replacement

Introduction

Removal and Replacement

There are no user-serviceable parts in the D9858 transcoder power supply. If the power supply requires replacement, contact your service provider or Cisco for information on how to return the unit for repair.

Chapter 6
Customer Information

Overview

In This Chapter

This chapter contains the following topics.

Topic	See Page
Product Support	6-2
Returning Products	6-4

Product Support

Scientific Atlanta provides its customers who have purchased support agreements with telephone support from anywhere in the world. If you require technical telephone assis-tance or product training support, or if you have any questions concerning their Scientific Atlanta product, you may contact the appropriate Customer Support Center from those listed below. Charges may apply for customers without a product support agreement.

Customers	Location	Phone Number
Programmers and Broadcasters	USA and Canada (Toll free) USA and Canada	1.888.949.4786 Toll-Free: 1.800.722.2009 +1.770.236.4786
Telcos and Cable Service Providers	SciCare™ Services	Local: 770.236.6900 (press 2 at the prompt)
All Customers	Europe	+32.56.445.155 or +32.56.445.197
All Customers	Asia	+852.2588.4746

Note: As our customer's needs change, so do our support options. For the most up-to-date support contacts and numbers, please check our support website:

http://www.scientificatlanta.com/contactus/customersupport.htm

Customers who call a Customer Support Center are asked specific questions in order to identify their needs. In this way, each call can be directed to the customer support representative most experienced with their Scientific Atlanta product. Customer Support Centers also provide the following pre- and post-sales support services for Scientific Atlanta products.

Training Support

On and off-site training plus technical support services are available for purchase for both equipment operators and system administrators.

Warranty and Post-Warranty Support

Warranty and post-warranty support services are available to help customers return Scientific Atlanta products for service or repair. For complete product warranty information, see the Warranty at the front of the manual.

Customer Responsibility

When returning equipment, the customer is solely responsible for equipment packaging and transportation costs to the factory.

At the customer's request, Scientific Atlanta will make reasonable efforts to provide warranty service at the customer's premises, provided that the customer pays current field service rates plus direct travel and accommodation expenses.

In Case of Repair

If your product requires repair, perform the following steps:

1. Notify Scientific Atlanta of the problem immediately, providing the model number and serial number of the equipment plus details of the problem. On receipt of this information, service information and shipping instructions will be provided.
2. On receipt of instructions, return the product by prepaid freight. Refer to the section Returning Products for details.

In Case of a Fault

If your product requires repair, perform the following steps:

1. Notify Scientific Atlanta of the problem immediately, providing the model number and serial number of the equipment plus details of the problem. On receipt of this information, service information and shipping instructions will be provided.
2. On receipt of instructions, return the product by prepaid freight. Refer to the section Returning Products for details.

Returning Products

Introduction

You must have a return material authorization (RMA) number to return a product. Contact the nearest customer service center and follow their instructions.

Returning a product to Scientific Atlanta for repair includes the following steps:

- Obtaining a RMA number
- Obtaining a customer service center shipping address
- Packing and shipping the product

Obtaining an RMA Number and Shipping Address

You must have an RMA number to return products.

RMA numbers are valid for 60 days. If you already have a number, but it is older than 60 days, you must contact a customer service representative to revalidate the number. You can return the product after the RMA number is revalidated.

Follow these steps to obtain an RMA number and shipping address.

1. Contact a customer service representative to request a new RMA number or revalidate an existing one.

   Refer to the earlier section under **Product Support**, page 6-2 to find a customer service telephone number in your area.

2. Provide the following information to the customer service representative:
   - Product name, model number, part number, serial number (if applicable)
   - Quantity of products to return
   - A reason for returning the product
   - Your company name, contact, telephone number, email address, and fax number
   - Any service contract details
   - Purchase order number of repair disposition authority, if available

   Result: The customer service representative issues the RMA number and provides the shipping address.

   Note: If you cannot provide a purchase order number:
   - A proforma invoice listing all costs incurred will be sent to you at the completion of product repair.
   - Customer service must receive a purchase order number within 15 days after you receive the proforma invoice.
   - Products can accrue costs through damage or misuse, or if no problem is found. Products incurring costs will not be returned to you without a valid purchase order number.

3. Proceed to **Packing and Shipping the Product**.

Packing and Shipping the Product

Follow these instructions to pack the product and ship it to Scientific Atlanta.

1. Are the product's original container and packing material available?
   - If **yes**, pack the product in the container using the packing material.
   - If **no**, pack the product in a sturdy, corrugated box, and cushion it with packing material.

   Important:
   - You are responsible for delivering the returned product to Scientific Atlanta safely and undamaged. Shipments damaged due to improper packaging may be refused and returned to you at your expense.
   - Do not return any power cords or accessories.
2. Write the following information on the outside of the container:
   - Your name
   - Your complete address
   - Your telephone number
   - RMA number
   - Problem description

   Note: Absence of the RMA number may delay processing of product repair and/or result in the equipment being returned unrepaired. Include the RMA number in all correspondence.
3. Ship the product to the address provided by the customer service representative.

   Note: Scientific Atlanta does not accept freight collect. Be sure to prepay and insure all shipments.

Appendices

Appendix A - Technical Specifications
Appendix B - Default Settings
Appendix C - Lock Levels
Appendix D - Equipment and Accessories
Appendix E - Compliance

Appendix A
Technical Specifications

Overview

Introduction

This appendix contains the technical specifications for the Model D9858 Advanced Receiver Transcoder.

The technical specifications are subject to change without prior notice.

In This Appendix

This appendix contains the following topics.

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Section A - L-Band Input and Processing

General

Parameter	Specification
System	MPEG-2/DVB Compatible DVB-S EN 300 421, EN 300 468
Demodulation	DVB-S QPSK, DVB-S2 QPSK and 8PSK
Number of RF Inputs	4 (only one can be active at a time)

LNB LO Stability

DVB-S and DVB-S2

Symbol Rate	Stability
1 to 4.99 MSymbols/s	≤ ± 125 kHz
5.0 to 9.99 MSymbols/s	≤ ± 1.0 MHz
10.0 to 45 MSymbols/s	≤ ± 3.0 MHz

Parameter	Specification
LNB Phase Noise Requirement	-35 dBc/Hz at δF = 100 Hz -53 dBc/Hz at δF = 1 kHz -76 dBc/Hz at δF = 10 kHz -96 dBc/Hz at δF = 100 kHz -106 dBc/Hz at δF = 1 MHz -117 dBc/Hz at δF = 10 MHz

LNB Power and Control

Parameter	Specification
Voltage (RF1to RF3, RF4 does not have an LNB supply)	13 V Vertical/circular right, 18 V Horizontal/circular left Off
Current	350 mA maxmium LNB Alarms: No load - 6 mA Overload - 360 mA minimum

DVB-S/DVB-S2 Satellite Receiver

Parameter	Specification
L-Band Input	
Number of Inputs	4
Input Connector Type	F-type, female, 75 Ω
Input Impedance	75 Ω
Return Loss	> 10 dB
Isolation Between Inputs	≥ 40 dB
L-band Frequency	950 to 2150 MHz, 1 MHz steps
Tuning Frequency Step Size	1 MHz
Receive Spectrum Sense	Normal and Inverted
L-Band Power	
Input Power Level per Carrier	-25 to -65 dBm (full transponder power)
DVB-S Modulation (EN 300 421)	
Modulation	QPSK
Convolutional FEC Rates	1/2, 2/3, 3/4, 5/6, 7/8
Symbol Rate Range	1.0 to 45 MSymbols/s
Eb/No (C/N) Ratio	See DVB-S2 Satellite Receiver Input, DVB-S Eb/No (C/N) Ratio Table
DVB-S2 Modulation (EN 302 307)	
Modulation	QPSK, 8PSK
Pilot On/Off	Pilot On
QPSK LDPC FEC Rates	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
8PSK LDPC FEC Rates	3/5, 2/3, 3/4, 5/6, 8/9, 9/10
LDPC FEC Frame Length	Normal
Symbol Rate Range	1 to 30 Ms/s
Maximum Channel Bit Rate	90 Mbit/s
Maximum User Bit Rate	83 Mbit/s

DVB-S Eb/No (C/N) Ratio

Convolutional FEC Rate	Eb/No Ratio (dB) in IF Loop for Correct MPEG-2 System Operation	C/N at DVB Threshold (BW = Symbol Rate)
1/2	4.5	4.1
2/3	5.0	5.9
3/4	5.5	6.9
5/6	6.0	7.9
7/8	6.4	8.5

C/N = Eb/No + 10 log (2 x FEC X 188/204)

The D9858 transcoder displays the C/N Ratio.

DVB-S2 Error Rate Performance Es/No (C/N) Ratio

Mode	Ideal Es/No (dB) for FEC Frame length = 64,800	Typical Performance (dB) BW = Symbol Rate
QPSK 1/2	1.00	1.2
QPSK 3/5	2.23	2.4
QPSK 2/3	3.10	3.2
QPSK 3/4	4.03	4.2
QPSK 4/5	4.68	4.8
QPSK 5/6	5.18	5.3
QPSK 8/9	6.20	6.4
QPSK 9/10	6.42	6.6
8PSK 3/5	5.50	5.8
8PSK 2/3	6.62	6.8
8PSK 3/4	7.91	8.1
8PSK 5/6	9.35	9.6
8PSK 8/9	10.69	10.9
8PSK 9/10	10.98	11.3

Note: The "Typical Performance" results are valid if the LNB phase noise is within the specified range.

Section B - Video Inputs/Outputs and Processing

General

Item	Specification
System	MPEG-2/DVB Compatible EN 300 421, EN 300 468

Video Inputs

Item	Specification
Transcoder Channel Inputs	
HD Video Input	
Number of Channels	1
Compression Format	MPEG-4 AVC
V Resolutions	1080, 720
Horizontal Video Resolutions	1080i: 1920, 1440 720p: 1280, 960
Bit Rate	3 Mb/s to 20 Mb/s Main Profile 3 Mb/s to 25 Mb/s High Profile
Connector	BNC, 75 Ω

Video Outputs

Item	Specification
Transcoder Channel Outputs	
HD Video Output	
Number of Channels	One
Compression Format	MPEG-2
Vertical Resolutions	Same as input.
Horizontal Resolutions	1080i : 1920, 1440 720p: 1280, 960
Bit Rate	10 to 25 Mb/s

Analog SD Video Output

Item	Test Signal	Specification CVBS1	Specification CVBS2
Number of Channels		One SD source program	One SD source program
Video Decompression Type		MPEG-2 4:2:0	MPEG-2 4:2:0
Output Impedance		75 Ω	75 Ω
525 Line			
Bar level	NTC-7 comp	700 mV ± 7 mV (± 1%)	700 mV ± 35 mV (± 5%)
Line Time Distortion	VITS17	≤ 1%	≤ 1%
Bar Tilt	NTC-7 comp	< 0.5%	< 0.5%
Sync Level	NTC-7 comp	40 IRE ± 0.5 IRE	40 IRE ± 2.0 IRE
DC Offset	NTC-7 comp	± 100 mV	± 100 mV
Chrominance-to-Luminance Gain Inequality	NTC-7 comp	100 ± 5%	100 ± 5%
Chrominance-to-Luminance Phase Inequality	NTC-7 comp	< 20 nS	< 20 nS
K factor K 2T	NTC-7 comp	< 1%	< 1%
Jitter		< 5 nS	< 5 nS
Frequency Response	FCC multi-burst	0.5 MHz, 0 dB 1.25 MHz, 0 dB ± 0.2 dB 2 MHz, 0 dB ± 0.2 dB 3 MHz, 0 dB ± 0.3 dB 3.58 MHz, 0 dB ± 0.3 dB 4.1 MHz, 0 dB ± 0.3 dB	0.5 MHz, 0 dB 1.25 MHz, 0 dB ± 0.2 dB 2 MHz, 0 dB ± 0.2 dB 3 MHz, 0 dB ± 0.3 dB 3.58 MHz, 0 dB ± 0.3 dB 4.1 MHz, 0 dB ± 0.3 dB
Differential Gain	NTC-7 comp	< 2.0%	< 2.0%
Differential Phase	NTC-7 comp	< 2º	< 2º
Luminance Non-linearity		< 5%	< 5%
Line Time Distortion	NTC-7 comp	≤ 1%	≤ 1%
Weighted Signal Video -to-Noise	50% Grey Field	≤ -70 dB rms	≤ -70 dB rms
Weighted Signal Video -to-Noise	Luminanace Ramp	≤ -55 dB rms	≤ -55 dB rms
Return Loss		DC to 10 MHz, > 30 dB	DC to 10 MHz, > 30 dB

Item	Test Signal	Specification CVBS1	Specification CVBS2
625 Line			
Bar level	VITS17	700 mV ± 7 mV (± 1%)	700 mV ± 35 mV (± 5%)
Line Time Distortion	VITS17	≤ 1%	≤ 1%
Bar Tilt	VITS17	< 0.5%	< 0.5%
Sync Level	VITS17	300 mV ± 3 mV	300 mV ± 15 mV
DC Offset	VITS17	± 100 mV	± 100 mV
Chrominance-to-Luminance Gain Inequality	Colour Bars	100 ± 5%	100 ± 5%
Chrominance-to-Luminance Phase Inequality	Colour Bars	< 20 nS	< 20 nS
K factor K 2T	VITS17	< 1%	< 1%
Jitter		< 5 nS	< 5 nS
Frequency Response	VITS18	0.5 MHz, 0 dB 1 MHz, 0 dB ± 0.2 dB 2 MHz, 0 dB ± 0.3 dB 4 MHz, 0 dB ± 0.3 dB 4.8 MHz, +0 dB, -0.5 dB	0.5 MHz, 0 dB 1 MHz, 0 dB ± 0.2 dB 2 MHz, 0 dB ± 0.2 dB 4 MHz, 0 dB ± 0.3 dB 4.8 MHz, +0 dB, -0.5 dB
Differential Gain	VITS330	< 3.0%	< 3.0%
Differential Phase	VITS330	< 3º	< 3º
Luminance Non-linearity	VITS17	< 5%	< 5%
Weighted Signal Video-to-Noise	50% Grey Field	≤ -70 dB rms	≤ -70 dB rms
Weighted Signal Video-to-Noise	Luminanace Ramp	≤ -55 dB rms	≤ -55 dB rms
Return Loss		DC to 10 MHz, > 30 dB	DC to 10 MHz, > 30 dB

Audio Inputs/Outputs

Analog SD Video Output, CVBS1 and CVBS2 for monitoring

Item	Specification
Number of Channels	One down-converted source HD program
Video Decompression Type	MPEG-2 4:2:0
Output Level	1.0 Vpp ± 5%
Output Impedance	75 Ω

Analog Audio Inputs

Item	Specification
Number of Channels	2
Audio Decompresssion	MPEG or Dolby Digital (AC-3)

Analog Audio Outputs

Item	Specification
Number of Channels	2 stereo pairs / 4 mono channels
Audio Decompresssion	MPEG or Dolby Digital (AC-3)

VBI Data Input/Output

Item	Specification
Transmission Format	EIA-708 and EIA-608

Section C - Transport Stream Outputs

ASI Output

Item	Specification
Number of outputs	1
Type of connector	75 Ω BNC
Output impedance	75 Ω according to EN 50083-9
Data amplitude	800 mV peak-peak ± 10% according to EN 50083-9
Return loss	> 17 dB, 27 to 270 MHz
Transport stream bit rate	1 to 120 Mbit/s ± 100 ppm
ASI bit rate	270 Mbit/s ± 100 ppm
Transport stream formats	According to EN 50083-9. 188 bytes structure, 204 bytes without Reed Solomon, Burst or packet format.

MPEGoIP Output

Item	Specification
Number of outputs	1
Type of connector	RJ-45, 10/100/1000BaseT
Output modes	UDP RAW, RTP
IP Addressing	Multicast
TS Streaming	MPTS
TS Bit Rate	1 to 120 Mbits/s

Section D - Control and Management Interfaces

Ethernet Management Interface

Item	Specification
Number of connectors	1
Type of connector	Eight-pin RJ-45
Ethernet type	10/100 BaseT
Required setup	IP address, default gateway and subnet mask

RS-232 Data Interface

Item	Specification
Connector type	9-pin sub-D female
Data rates	RS-232 asynchronous data at selectable rates up to 38.4 kb/s: 300, 1200, 2400, 4800, 9600, 19,200, 38,400 b/s

Alarm Interface

Item	Specification
Number of outputs	3, each having one set of contacts closed and one set open during normal operation. Alarms are signalled by reversing the polarity of the two contact sets.
Type of connector	Terminal block
Max. voltage	≤ 30 V AC, ≤ 30 V DC
Max. current	≤ 1 A

Contact Closure Interface

Item	Specification
Connector type	9-pin sub-D female
Minimum duration of event guaranteed to be detected	250 ms, 1 frame period, e.g., for 1080i/25 Hz, 40 ms for DPI applications
Max. on generator impedance	100 Ω
Min. off generator impedance	100 kΩ

Section E - Power and General Specifications

General

Item	Specification
LCD	2 lines of 40 characters, backlit LCD.
Keypad	Arrow keys, 0 to 9, SELECT, MENU, INFO, ADV, MAP, APPLY and NAV keys.
LEDs	Green LED for Signal status, Red LED for Alarm indication.

Power

AC Power Connector

Item	Specification
Type of connector	IEC 320 style C14 appliance receptable
AC input	100 to 240 V AC, 50/60 Hz
Power	110 W max.
Power Quality	ANSI/IEEE Std C62.41.1-2002

Power

To operate the receiver, you must connect it to an AC power source.

WARNING:

Make sure that at least one end of the power cable(s) remains easily accessible for unplugging, if you need to switch off the unit. For example: Ensure that the socket outlet is installed near the product.

WARNING:

To avoid electrical shock, connect the three-prong plug on this product to an earth-grounded three-pin socket outlet only.

Section F - Mechanical/Environmental

Mechanical

Item	Specification
Height	1 U (4.37 cm) (1.72″)
Width	44.07 cm (17.35″)
Depth	35.0 cm (13.78“)
Weight	4.5 kg (10 lb.)

Environment

Item	Specification
Storage	
General	The product is within the original packaging.
Humidity	5 to 95% non-condensing
Temperature	-20 to +70°C (-4 to 158°F)
Operation	
Humidity (non-condensing)	95% humidity is valid up to 40°C 91% humidity is valid up to 45°C 70% humidity is valid up to 50°C
Temperature	0°C to +50°C (32°F to 122°F)
Altitude	
Operating	10,000 ft. (3048 m) max.
Non-operating	30,000 ft. (9144 m) max.

Appendix B
Default Settings

Overview

Introduction

The D9858 Advanced Receiver Transcoder is factory configured with default settings unless you have requested a custom factory configuration. This appendix lists the factory default settings.

Topic	See Page
Factory Default Settings	B-2
DPM Default Settings for Different Output Modes	B-9

Factory Default Settings

RF Tuning

Parameter	Default
RF Sel	RF1
Freq	3.449
Sym Rate	28.3465 MSps
FEC	AUTO
Polarity	Horiz
IQ	AUTO
LO1	5.15 GHz
LO2	0
LO Sel	Off
XOVER	0.0
Polarization	Horiz
Orb Pos	0.0
LNB Power	Off
East/West	NA
Modulation	DVB-S
DVB-S2 Roll-off	0.35

Tune Mode

Parameter	Default
Acq Mode	Basic
CA Mode	Std
Freq Sel	NIT
Service List	Rigorous
Use BAT	No
Use NIT	No
Use SDT	No
Use PAT	No

Audio/Video Setup

Parameter	Default
Audio Sel	1
Language	English
DownMix	2/0 Lt Rt
Mode	Stereo
AC3 Compression	RF Mode
Lip Sync Adj	0
Sync Mode	On
PMT Source	Aud1
Digital Out Pref	PCM Samples
Vol Left	0
Vol Right	0

Video Formats

Parameter	Default
PV Format	Auto
SD Format	SD
Tri-Synch Mode	Disabled
SD Aspect Ratio	4:3
Aspect Ratio Selection	None
Aspect Ratio WSS	Passthrough
Closed Caption Mode	Auto
Closed Caption Control	0

PSI Options

Parameter	Default
Instance Id	1
Instance Name	Active_1, Active_2
Global Map Mode	MAP SVC ID & PID
Duplication Method	PSI Remapping
Regen Output Rate	PowerVu Std
Unreferenced Content	Drop All
PSI Option	Control By Table
PAT	Pass
CAT	Pass
PMT	Pass
TSDT	Pass
NIT	Pass
NIT OtherPass	Pass
SDT	Pass
SDT OtherPass	Pass
BAT Pass	Pass
EIT	Pass
EIT Other	Pass
TDT	Pass
ST	Pass
RST	Pass
TOT	Pass
DIT	Pass
SIT	Pass
ECM	Pass
EMM	Pass

PSI Options

Parameter	Description
DRT	Pass
CDT	Drop
Service ID Output	Valid Pgms Only
Modified	No

Transcode Menu

Parameter	PE1 Default	PE2 Default
Index	1	2
LOI Action	Black Output	Black Output
GOP Control	User GOP (MN)	User GOP (MN)
User GOP	152	152
Video Mode	HD Output	HD Output
HD Res	Full	Full
3:2 Pulldown	Disabled	Disabled
B/R Mode	CBR	CBR
Bit Rate	16 Mbit/s	16 Mbits/s
Aspect Ratio	16:9	16:9
Aspect Ratio Conv	None	None
PCR Insert Rate	10	10

DPM

Parameter	Default
PE	0
Stream Type	0
Stream Category	UNKN
Stream Instance	0
Action	Drop
Output PID	0

IP

Parameter	Default
Port Id	0
IP name	control
IP version	IPv4
IPv4 version	192.131.244.6
IPv4 Mask	24
IPv4 Gateway	192.131.244.254
Read Community String	public
Write Community String	public

Muting Thresholds

Parameter	Default
PV Transport Cutoff	1.00e-2
PV Transport Restore	7.50e-3
PV Audio Cutoff	7.00e-3
PV Audio Restore	5.50e-3
LDPC Transport Cutoff	1.50e-1
LDPC Transport Restore	3.00e-2
LDPC Audio Cutoff	4.00e-1
Muting Control	Enable

Subtitling

Parameter	Default
Op Mode	Off
Language Select	Langentry
Language List	eng
PMT Order	First
Imitext position	Standard
ForeGnd	Auto
BackGnd	Auto
Entry	eng

Administration

Parameter	Description
Date Format	DD_MM_YYYY
Time Format	24 Hr
GMT Offset	+ 05_30
LCD Contrast	30
Keyboard Lock Enable	No
Keyboard Timeout (seconds)	60
M1 Port Type	ASI
M2 Port Type	ASI
Menu Type	Disabled
Regenerate	Always
Banner	Enable

DPM Default Settings for Different Output Modes

The DPM parameters are preset to default settings for each DPM Output Mode.

The default settings for particular Output modes have been preset to optimize the output when either PID mapping or transcoding is required. If the DPM parameters are changed to values which switch the transcoder to Full DPM Control, the transcoder may enter a condition where conflicts in the settings may occur, which may require manual manipulation of the DPM or output parameters to obtain the desired output.

If you change any of the DPM parameters listed in this table in any of MAP and Transcoding Output Modes, the transcoder Output Mode will change to DPM Full Control, but will retain the current settings. This is noted in the table below.

Output Mode Changes to Full DPM Control with DPM Parameter Change	**No Output Mode Change with DPM Parameter Change**
MAP Pass Through	No Output
MAP Svc Chans Only	Passthrough
Transcoding	Service Chans Only

DPM Default Settings for Different Output Modes, Continued

The fields labelled "Any" in the table below, are 'don't care' parameters, in which case, the Output Mode will not change if the parameter is changed. However, if you change any of the other parameters listed in the table for the MAP or Transcoding output modes, the Output Mode will change to Full DPM Control.

Output Mode	No Output	Passthrough	Service Chans Only	MAP Passthrough	MAP Svc Chans Only	Transcoding
Rate Control	Any	Any	Any	Any	Any	Any
User Rate	Any	Any	Any	Any	Any	Any
Descramble Mode	Any	Any	Any	Any	Any	Descrambled
Regenerate	Any	Any	Any	Any	Any	Any
Insert Null Packet	Any	Any	Any	Any	Any	Any
Map Mode	Svc ID	Svc ID	Svc ID	Svc ID & PID	Svc ID & PID	Svc ID & PID
Duplic Mode	PSI Remap	PSI Remap	PSI Remap	PSI Remap	PSI Remap	Pkt Copy
Unref	Drop	Pass	Drop	Pass	Drop	Drop
PSI Options	Drop	Ctl By Table	Ctl By Table	Ctl By Table	Ctl By Table	Ctl By Table
PSI Rate	SA Std	SA Std	SA Std	SA Std	SA Std	SA Std
Svc ID	Valid Ch	Valid Ch	Valid Ch	Valid Ch	Valid Ch	Valid Ch
PAT	Pass	Pass	Regen	Regen	Regen	Regen
CAT	Pass	If Descramble Mode is set to Descrambled, it is set to Regen; otherwise, it is set to Pass	If Descramble Mode is set to Descrambled, it is set to Regen; otherwise, it is set to Pass	Regen	Regen	Regen
PMT	Pass	If Descramble Mode is set to Descrambled, it is set to Regen; otherwise, it is set to Pass	If Descramble Mode is set to Descrambled, it is set to Regen; otherwise, it is set to Pass	Regen	Regen	Regen
TSDT	Pass	Pass	Pass	Pass	Pass	Pass
NIT	Pass	Pass	Regen	Regen	Regen	Regen
NITO	Pass	Pass	RwRC	PwRc	PwRC	PwRC

Output Mode	No Output	Passthrough	Service Chans Only	MAP Passthrough	MAP Svc Chans Only	Transcoding
SDT	Pass	If Descramble Mode is set to Descrambled, it is set to Regen; otherwise, it is set to Pass	Regen	Regen	Regen	Regen
SDTO	Pass	If Descramble Mode is set to Descrambled, it is set to PwRC; otherwise, it is set to Pass	PwRc	PwRC	PwRC	PwRC
BAT	Pass	If Descramble Mode is set to Descrambled, it is set to PwRC; otherwise, it is set to Pass	PwRc	PwRc	PwRc	PwRc
EIT	Pass	Pass	Pass	Pass	Pass	Drop
TDT	Pass	Pass	Pass	Pass	Pass	Pass
RST	Pass	Pass	Pass	Pass	Pass	Pass
TOT	Pass	Pass	Pass	Pass	Pass	Pass
DIT	Pass	Pass	Pass	Pass	Pass	Pass
SIT	Pass	Pass	Pass	Pass	Pass	Pass
ECM	Pass	Pass	If Descramble Mode is set to Descrambled, it is set to Drop; otherwise, it is set to Pass	If Descramble Mode is set to Descrambled, it is set to Drop; otherwise, it is set to Pass	If Descramble Mode is set to Descrambled, it is set to Drop; otherwise, it is set to Pass	Drop
EMM	Pass	Pass	If Descramble Mode is set to Descrambled, it is set to Drop; otherwise, it is set to Pass	If Descramble Mode is set to Descrambled, it is set to Drop; otherwise, it is set to Pass	If Descramble Mode is set to Descrambled, it is set to Drop; otherwise, it is set to Pass	Drop
DRT	Pass	Pass	Pass	Pass	Pass	Drop
CDT	Pass	Pass	Pass	Pass	Pass	Drop
PE Action	All PEs set to Drop	All PEs set to Pass	All PEs set to Pass	All PEs set to Map	All PEs set to Map	PE1, PE2 set to XCode

Appendix C
Lock Levels

Overview

Introduction

This appendix contains the lock levels for the D9858 Advanced Receiver Transcoder.

In This Appendix

This appendix contains the following topics.

Topic	See Page
D9858 Advanced Receiver Transcoder Lock Levels	C-2

D9858 Advanced Receiver Transcoder Lock Levels

Four (4) lock levels (**0**, **1**, **2**, **3**, and **4**) are available for protecting your transcoder and its settings against unauthorized use or modification (see the table below for full details).

Level	Description
0	All settings are unlocked (transcoder lockout disabled)
1	All settings are unlocked except Factory Reset, Password options and Transcoder parameters.
2	All settings are unlocked except RF and ASI Input Tuning parameters.
3	All settings locked (access via password only), except IP address and RF power.
4	All settings locked (access via password only, can be changed via front panel remote terminal or PNC uplink signal)

If a change made to the current Lock Level setting is not saved, the previously saved setting is restored.

Note: The user cannot select **NONE** as a Lock Level.

Video

Parameter	Lock Level
PV Format	2
SD Format	2

Aspect Ratio

Parameter	Lock Level
SD Aspect Ratio	2
AR Selection	2
AR Conversion	2
WSS Mode	2

Closed Caption

Parameter	Lock Level
Preferred Mode	2

Subtitles

Parameter	Lock Level
Op Mode	2
Lang Menu	2
Lang List	2
PMT Order	2
Manual Entry	2
Imitext Position	2
Foreground	2
Background	2

Download

Parameter	Lock Level
Mode	2
DL Type	2
DL Bank	2
Command	2

Runnable Application

Parameter	Lock Level
Index	2
Select	2
Erase	2

Runnable FPGA

Parameter	Lock Level
Index	2
Select	2
Erase	2

Audio

Parameter	Lock Level
Audio Sel Key	2
Mode	2
AC3 Comp	2
Left	2
Right	2
PMT Source	2

PV Muting Thresholds

Parameter	Lock Level
Transport Cutoff	2
Transport Restore	2
Audio Cutoff	2
Audio Restore	2

LDPC Muting Thresholds

Parameter	Lock Level
Transport Cutoff	2
Transport Restore	2
Audio Cutoff	2

Parameter	Lock Level
Audio Restore	2

Muting Thresholds

Parameter	Lock Level
Restore Defaults	2
Control	2

Fixed PID

Parameter	Lock Level
CH	1
Ch Stream IDX	1
PID	1
Stream Type	1

IP

Parameter	Lock Level
Port ID Key	3
Name	3
V4 IP Addr	3
V4 Mask	3
V4 Def Gateway	3

SNMP Comm

Parameter	Lock Level
Read String	2
Write String	2
Sys Name	2
Sys Location	2
Sys Contact	2

Trap Destination

Parameter	Lock Level
Index	2
IP Addr	2

Active Settings

Parameter	Lock Level
ACQ Mode	1
CA Mode	1
Input Sel	1
Freq Sel	1
Ser List Mode	1
Use BAT	1
Use NIT	1
Use SDT	1
Use PAT	1

Active Tuning

Parameter	Lock Level
Net ID	1
ASI	1
RF1	1
RF2	1
RF3	1
RF4	1
Input	1
Modulation	1
Frequency	1

Parameter	Lock Level
Sym Rate	1
FEC	1
LNB Power	3
Polarization	1
IQ	1
22 kHz Tone	1
Rolloff	1

Active Inputs

Parameter	Lock Level
RF Sel Key	1
LNB Type	1
LNB Trim1	1
LNB Trim2	1
Crossover	1
LO Select	1
LOF 1	1
LOF 2	1
Orbital Pos	1
E/W Flag	1
Orb Polarization	1

BISS

Parameter	Lock Level
Mode	2
BISS 1 SW	2
BISS E SW	2
BISS E ID	2

Program Entry

Parameter	Lock Level
PE Index	2
Channel Num	2
CA Resource	2
Resource ID	2
CH Cmd	2

Program Status

Parameter	Lock Level
PE Index	2
Channel Num	2

Decode Enable

Parameter	Lock Level
Decoder	2
Enabled	2

Power On

Parameter	Lock Level
Clr Reset Count	0

User Setting

Parameter	Lock Level
Date Format	2
Time Format	2
GMT Offset	2

Parameter	Lock Level
KB Lock Enable	2
KB Lock Timeout	2
M1 Port Type	2
M2 Port Type	2
Contrast	2
Menu Type	2
Clear ADP	2
Regenerate	2
Banner	2
Reboot	2

Admin

Parameter	Lock Level
Lock Level	3
Lock Level Pwd	3
Lock Level Pwd Cur	0
Lock Level Pwd New	0
Lock Level Pwd Conf	0
Factory Reset	0
Clean Unused Tbls	0

DPM Transmit

Parameter	Lock Level
Output Mode	2
Descramble Mode	2
Rate Ctrl	2
Rate	2
Ins Null Pkt	2

DPM Global Configuration

Parameter	Lock Level
Instance ID	2
Instance Name	2
Map Mode	2
Dup Method	2
Reg Rate	2
Unref Content	2
PSI Output	2
PSI PAT	2
PSI CAT	2
PSI PMT	2
PSI TSDT	2
PSI NIT	2
PSI NITO	2
PSI SDT	2
PSI SDTO	2
PSI BAT	2
PSI EIT	2
PSI TDT	2
PSI ST	2
PSI RST	2
PSI TOT	2
PSI DIT	2
PSI SIT	2
PSI ECM	2
PSI EMM	2
PSI DRT	2

Parameter	Lock Level
PSI CDT	2
Svc ID Output	2
Modified	2
Activate	2

DPM PE Maps

Parameter	Lock Level
Instance ID	2
PE	2
Action	2
PMT PID	2
Output Channel	2
PID Map	2
Transcoder	2

DPM PID Map

Parameter	Lock Level
Index	2
In Use	2
Instance Name	2
PE	2
Row	2
Stream Type	2
Stream CAT	2
Stream Inst	2
Action	2
Output PID	2

IP Configuration

Parameter	Lock Level
Enabled	2
Instance Name	2
TP Proto	2
Dest IP Addr	2
SAP Multicast IP Addr	2
Dest Port	2
Src Port	2
Min IP Per Sec	2
PCR Addition	2
PCR Start New Pkt	2
Send Sap	2
Send Sap Str	2
Max TPKT Per IP	2
SAP Str	2
Intf Mode 1	2
Intf Mode 2	2

Transcoder Configuration

Parameter	Lock Level
Index	0
LOI Action	0
Video PreProc	0
GOP	0
Manual GOP	0
Video Mode	0
V Res	0

Parameter	Lock Level
3:2 Pulldown	0
Bit Rate Mode	0
Aspect Ratio	0
AR Conv	0
PCR Rate	1

Transcoder Resolution

Parameter	Lock Level
Index	0
V Res	0
H Res	0

Transcode Rate

Parameter	Lock Level
Index	0
Mode	0
Bit Rate	0

Transcode Status

Parameter	Lock Level
Index	0
Video Stream	0

Alarm Setting

Parameter	Lock Level
Enable	2
Relay	2
Trap	2

Warning Setting

Parameter	Lock Level
Name	2
Enable	2
Relay	2
Trap	2

Fault Status

Parameter	Lock Level
Text ID	2
Fault Num	2
Name	2
Type	2
Severity	2
Last Date Time	2
Trap State	2
Details	2
Relay	2

Fault History

Parameter	Lock Level
Sequence	2
Name	2
Type	2
Set Date Time	2
Reset Date Time	2
State	2
Details	2

Log History

Parameter	Lock Level
Sequence	2
Cur Date	2
Cur Time	2
Message	2

Appendix D
Equipment and Accessories

Overview

Introduction

This appendix contains names and part numbers of equipment and accessories for the D9858 Advanced Receiver Transcoder.

In This Appendix

This appendix contains the following topics.

Topic	See Page
Accessory Kits for the D9858 Advanced Receiver Transcoder	D-2

Accessory Kits for the D9858 Advanced Receiver Transcoder

Accessory Kit

The accessory kit for the D9858 Advanced Receiver Transcoder contains the following items:

Part Number	Description
4023074 Rev B	Model D9858 Advanced Receiver Transcoder Installation and Operation Guide

Appendix E
Compliance

Applicable Standards and Notices

Safety

The D9858 Advanced Receiver Transcoder has been approved for safety by the Standards Council of Canada and the OHSA (NRTL) Accredited Testing Laboratory to the following standards:

CAN/CSA-C22.2 No. 60950-1-03

ANSI/UL Std No. 60950-1-2003

Also, this product is being evaluated under the IECEE CB scheme to the following international standard:

IEC 60950-1 1st Ed

For the CB report and Certificate the product are evaluated for the country differences outlined in CB Bulletin 109A:

EMC

Electrostatic Discharge (ESD) results from the static electricity buildup on the human body and other objects. This static discharge can degrade components and cause failures.

Take the following precautions against electrostatic discharge.

- Use an anti-static bench mat and a wrist strap or ankle strap designed to safely ground ESD potentials through a resistive element.
- Keep components in their anti-static packaging until installed.
- Avoid touching electronic components when installing a module.

Electromagnetic Compatibility Regulatory Requirements

Ethernet cables should be of single-shielded or double-shielded type. Coaxial cables should be of the double-braided shielded type. Where this equipment is subject to USA FCC and/or Industry Canada rules, the following statements apply:

FCC Notices

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions supplied in this manual may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception (which can be determined by turning the

equipment off and on), the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the television receiving antenna.
2. Increase the separation between the equipment and the receiver.
3. Connect the equipment to an AC outlet on a circuit different from that to which the receiver is connected.
4. Contact your dealer/ reseller or an experienced radio/ TV technician for help.

The user may find the booklet "Interference handbook" prepared by the Federal Communications Commission helpful. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, stock no. 004-000-00450-7.

Shielded cables should be used to interconnect this device with any other/ peripheral equipment (i.e., data sources, terminals, monitors, etc.) to ensure compliance with Class B limits. Failure to do so may result in radio or TV interference. Cables should be of braided shield construction with metal end shells.

Industry Canada Notice

This digital apparatus does not exceed the limits for Class B radio noise emissions from digital apparatus as set out in the radio interference regulations of the Industry Canada.

Le present appareil numerique n'emet pas de bruites radioelectriques qui dépassant les limites applicables aux appareils numeriques de Class B prescrites dans le reglement sur le brouillage radioelectrique edicte par Industrie Canada.

Unauthorized Modifications

The manufacturer is not responsible for any radio or TV interference resulting from unauthorized modifications made to this equipment. It is the responsibility of the user to correct such interference at his own expense.

Scientific-Atlanta Europe NV
Luipaardstraat 12
8500 Kortrijk
Belgium

CE MARKING 08

Declaration of Conformity

The Product: Advanced Receiver Transcoder

Model Number: D9858

Ratings: 100-240V~, 50/60Hz, 1.5Amax

Has been designed and manufactured in accordance with the following Harmonised Standards:

Number and Date of Issue	Title of Standard
EN 60065:2002	- Audio, video and similar electronic apparatus – Safety requirements
EN 55022:2006, Class B	- Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Devices
EN 55013:2003	- Electromagnetic Compatibility Requirements - Sound and Television Broadcast Receivers and Associated Equipment
EN 55024:1998 +A1:2001 & +A2:2003	- Information technology equipment - Immunity characteristics - Limits and methods of measurement
EN 61000-3-2:2001	- Electromagnetic Compatibility - Part 3: Limits Section 2: Limits for Harmonic Current Emissions (Equipment Input Current less than 16A per phase)

According to the provisions of the Low Voltage Directive 2006/95/EC and the EMC Directive (89/336/EEC) 2004/108/EC amendment by 93/68/EEC

Toronto, Canada, May 31, 2008
(Issue Place and date)

Scientific-Atlanta Canada Inc. (Digital Media Networks Business Unit)
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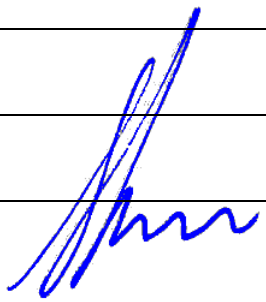

For the manufacturer: Steven Lawrence, Product Regulatory Compliance
(Signature, Name and Title)

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